

1908.

County Borough of Swansea.

THE
Medical Officer of Health's Report

ON THE

Health and Sanitary Condition of the County
Borough of Swansea ;

INCLUDING A COMPLETE ACCOUNT OF AN

Outbreak of Epidemic Cerebrospinal Meningitis,
or "Spotted Fever,"

WHICH OCCURRED DURING THE YEAR,

AND THE

Medical Inspection of School Children,

BY

DAVID JAMES MORGAN,

M.A., M.D., B.C. (Cantab.), D.P.H. (Lond.), F.C.S.

MEDICAL OFFICER OF HEALTH ; MEDICAL SUPERINTENDENT OF THE
BOROUGH FEVER HOSPITAL ; CHIEF MEDICAL OFFICER TO
THE LOCAL EDUCATION AUTHORITY ; SUPERVISING
OFFICER OF MIDWIVES ;

AND

The Chief Sanitary Inspector's Report.

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1909

County Borough of Swansea.

STATISTICAL SUMMARY, 1908.

Rateable Value (General District Rate)	£455,372
„ „ (Poor Rate)	..	..	£485,182
Area of County Borough	..	..	5,963 acres
Inhabited houses (census, 1901)	..	..	18,154
„ „ (estimated, 1908)	..	..	20,150
Population (census, 1901)	..	..	94,537
„ (estimated, 1908)	..	..	107,620
Persons per house (as per census, 1901)	..	..	5·2
„ „ (estimated, 1908)	..	..	5·34
Births	..	..	3,299
Birth rate per 1,000 inhabitants	..	..	30·6
Deaths (nett)	..	..	1835
Death rate per 1,000 inhabitants (nett)	..	..	17·0
„ „ Zymotic	..	..	1·49
„ „ Infantile, per 1,000 births	..	..	150
„ „ Phthisis per 1,000 inhabitants	1·66

County Borough of Swansea.

WORKS AND SANITARY COMMITTEE.

The Mayor :

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Chairman :

Mr. Alderman H. G. SOLOMON.

Deputy Chairman :

Mr. Alderman D. WILLIAMS.

Members :

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Medical Officer of Health:

DAVID J. MORGAN, M.A., M.D., B.C. (CANTAB.),
D.P.H. (LOND.), F.C.S.

Chief Sanitary Inspector:

LLEWELLYN DAVIES, CERT. INSPECTOR AND SURVEYOR,
ROYAL SAN. INSTITUTE.

Chief Assistant Inspector:

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Miss JEANNIE LAND.

ANNUAL REPORT
OF THE
Medical Officer of Health,
TO THE
MAYOR, ALDERMEN, AND COUNCILLORS
OF THE
COUNTY BOROUGH OF SWANSEA.

GENTLEMEN,

I have the honour to present to you my first Annual Report, for the year 1908.

I commenced my duties as Medical Officer of Health of Swansea on March 25th, 1908, in succession to your Consulting Medical Officer of Health, Dr. EBENEZER DAVIES, who held the office for nearly 43 years, having been appointed in October, 1865.

During the year an outbreak occurred, of which is known as **Epidemic Cerebrospinal Meningitis**, or **Spotted Fever**. An exhaustive report is presented of 63 cases (see pages 61 to 96). The disease never became epidemic in the true sense of the word, although in one instance, 4 cases occurred in one house, and in two other instances, two cases in one house. Many important features were brought out as the result of my investigations:—

- 1.—The disease, like scarlet fever and measles, is probably always present with us, but has hitherto remained undetected. It may become epidemic under conditions which are not yet fully understood.

- 2.—The disease cannot be identified with certainty, without the aid of bacteriological examination of the spinal fluid by means of lumbar puncture.
- 3.—The largest number of cases occurred during the month of April. Children were more often attacked than adults; and the poorer than the better classes.
- 4.—The mortality in the case of patients treated at the Borough Fever Hospital was less than one-half of the mortality in cases treated elsewhere, viz. : 44·4 per cent., as against 93·3 per cent. This I attribute to repeated lumbar puncture and good nursing. The mortality for all cases was 73·4 per cent. No serum or antiseptic injections were used in any of the cases. This, in view of the better results obtained at the Fever Hospital, is a point of extreme importance, as a large number of incorrect deductions have been published where a serum has been used in such cases, the value of certain factors (other than serum) having been altogether ignored.
- 5.—The path of infection is, in my opinion, through the intestinal tract; but whether by means of food or water, is not known.

Owing to the prevalence of Cholera in Russia during the year, I made (at the request of Dr. A. Hanson, the Port Medical Officer), a bacteriological investigation of a suspicious case of Cholera admitted into the Port (see page 16). This proved to be a case of Enteric Fever.

In the past, the vital statistics (required in Table II. of the Local Government Board) of separate localities in the County Borough of Swansea, dealt with the following seven divisions of the Town:—

- (1) Swansea County Borough, (2) Swansea Town Division, (3) St. Thomas, (4) Clase (Old and New), (5) St. John's, (6) Llansamlet, and (7) Llandilo-Talybont. As the boundaries of these districts are probably not accurately known to any member of the Council, I have for the present year tabulated the vital statistics required by this table according to the various wards of the town, and this I propose to continue in the future. It will render comparison easier, and will make the subject more interesting to the members of the various wards.

At your request, I made an investigation into the value of a certain much advertised Rat-Virus. Although several different lots of this Virus were experimented with, I found that it did not fulfil the

purpose for which it was sold, and I had therefore to condemn it as being useless as a rat destroying virus. It failed to kill a single rat in the series of experiments which I undertook.

Owing to numerous complaints being received as to nuisances caused by dwellers in tents, vans, etc., bye-laws with respect to tents, vans, sheds, and similar structures used for human habitation were drawn up and were sanctioned by the Local Government Board (see pages 44 to 49). These are now (1909) in force within the Borough.

Many complaints were received from persons living near rag and bone stores. In order to diminish, as far as possible, the nuisance arising from these, bye-laws for the regulation of the offensive trade of a dealer in rags and bones, were also drawn up and submitted to the Local Government Board for approval. Several of the clauses submitted were disallowed by the Local Government Board and their reasons for so doing were given.

The draft bye-laws submitted, together with the observations of the Board, and my comments on these, are given in full in this report (see pages 41 to 44).

During the year, I wrote a letter to those in charge of the various places of Divine Worship in the town, urging upon them the advisability of using individual drinking cups in the celebration of the Holy Communion, on the grounds of cleanliness and the prevention of the spread of disease. My suggestion has been adopted, I am glad to say, in at least half-a-dozen churches—all of them Nonconformist (see pages 37 to 39). I am sure that others will soon follow, and I hope the day is not far distant when religion will cease to be a cloak for what is undoubtedly an insanitary act.

The Notification of Births Act, 1907, was adopted by the Council during the year, and came into force in the Borough on August 21st, 1908.

I am glad to report that *the number of cases of infectious diseases* notified during the year, is the *lowest ever recorded*, in spite of the outbreak of spotted fever; shewing a progressive decline from 959 cases in 1902 (when small-pox was prevalent) to 374 in 1908 (see pages 23 and 24, tables A and B).

During the year I drew up a list of "Precautions for the Prevention of the Spread of Pulmonary Tuberculosis" (see pages

17 to 19). If the recommendations contained therein are consistently carried out the spread of the disease should be considerably diminished.

To the Chairman and Members of the Works and Sanitary Committee I beg to tender my sincere thanks for the support and consideration which they have extended to me at all times in my efforts at improving the public health.

I am, Gentlemen,
Your obedient Servant,

David J. Morgan

Medical Officer of Health.

Population. — The population of the County Borough of Swansea at the middle of the year I estimate at 107,620. The opinion has been expressed in previous annual reports that the official figures of the Registrar-General did not approximately represent the actual population of Swansea. The estimate of the Registrar-General is necessarily based upon the enumerated increase of the population during the intercensal period 1891—1901, which in the case of Swansea was phenomenally low, and quite out of proportion with the increase of any decennial period during the preceding 40 years. The altered conditions since 1901 point to an accelerated rate of increase:—(1) A large natural increase of population, or excess of births over deaths. (2) The larger number of houses for which plans were approved by the Sanitary Authority, which grew from 67 in 1901 to 458 in 1906, 226 in 1907, and 311 in 1908. (3) The increased industrial activity of the district, especially the construction of King Edward's Dock, which has brought a large accession of population into the Borough. (4) The congestion of the population in those parts of the district occupied chiefly by the artizan and labouring-population.

New Houses.—Plans for the building of 311 houses were approved by the Sanitary Authority during 1908, as compared with 226 houses in 1907. This shows an increased rate of house building as compared with the preceding year 1907, and one which is far in excess of the rate during the early years of the decade. Supervision over the erection of new houses is carried out by the Borough Surveyor and his staff,

TABLE I.—Local Government Board.


Vital Statistics of Whole District during 1908 and previous years.

YEAR.	Population estimated to middle of each year.	BIRTHS.		TOTAL DEATHS REGISTERED IN THE DISTRICT				Total Deaths in Public Institutions in the District.	Deaths of Non-residents Registered in Public Institutions in the District.	Deaths of Residents Registered in Public Institutions beyond the District.	NETT DEATHS AT ALL AGES BELONGING TO THE DISTRICT.	
		Number.	Rate.*	Under 1 year of age.		At all Ages.					Number.	Rate.*
				Number.	Rate per 1000 Births Registered	Number.	Rate.*					
1	2	3	4	5	6	7	8	9	10	11	12	13
1898... ..	93388	2940	31'4	539	183	1890	20'2	148	10	...	1880	20'1
1899... ..	93797	2875	30'6	473	164	1873	19'9	169	17	...	1856	19'7
1900... ..	94206	2827	30'0	492	174	1799	19'1	186	42	26	1783	19'2
1901... ..	94615	2837	30'0	495	174	1767	18'6	181	39	13	1741	18'4
1902... ..	96593	2979	30'8	405	136	1557	16'1	218	25	26	1588	16'1
1903... ..	98613	3032	30'7	497	164	1764	17'9	193	31	37	1770	17'9
1904... ..	100670	3008	29'9	520	172	1726	17'1	193	40	48	1734	17'2
1905... ..	102780	3073	29'9	402	131	1650	16'1	245	48	30	1632	15'9
1906... ..	104930	3212	30'6	505	157	1828	17'4	263	59	37	1806	17'2
1907... ..	107120	3076	28'7	420	137	1760	16'4	235	53	31	1738	16'2
Averages for years 1898-1907 ...	98671	2985	30'2	475	159	1761	17'8	203	36	...	1750	17'7
1908	107620	3299	30'6	500	151	1886	17'5	316	66	25	1835	17'0

* Rates in Columns 4, 8 and 13, calculated per 1000 of estimated population.

Area of District in acres (exclusive of area covered by water)—5,963. Total population at all ages—94,537.
Number of Inhabited Houses—18,154. Average Number of Persons per House—5'2.

} At Census of 1901.



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SWANSEA DISTRICT.

Vital Statistics of Separate Localities in 1908 and Previous Years.

[illegible]

TABLE II. (B.)—Local Government Board.

SWANSEA DISTRICT.

Vital Statistics of Separate Localities in 1908 and Previous Years.

NAMES OF LOCALITIES.	1 SWANSEA COUNTY BOROUGH.				2 ALEXANDRA WARD.				3 BRYNMELIN WARD.				4 CASTLE WARD.				5 EAST WARD.				6 FFYFNONE WARD.				7 LANDORE WARD.				8 MORRISTON WARD.				9 ST. HELEN'S WARD.				10 ST. JOHN'S WARD.				11 VICTORIA WARD.													
	YEAR.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births Registered.	Deaths at all Ages.	Deaths under 1 year.																	
1898	93,388	2940	1880	539	During these years the Borough was divided into Seven Districts (see Table II (A)—Local Government Board).																																																	
1899	93,797	2875	1856	473																																																		
1900	94,206	2827	1783	402																																																		
1901	94,615	2837	1741	495																																																		
1902	96,593	2979	1558	404																																																		
1903	98,613	3032	1770	495																																																		
1904	100,670	3008	1734	518																																																		
1905	102,780	3073	1632	401																																																		
1906	104,930	3212	1806	501																																																		
1907	107,110	3076	1738	418																																																		
Averages of years 1898 to 1907	98,671	2985	1749	473																																																		
1908	107,620	3299	1835	497		10,860	364	211	71		10,730	381	271	57		3,720	80	67	17		13,430	457	234	69		13,730	326	184	44		12,460	408	180	48		10,310	302	149	49		13,170	320	176	38		12,390	411	202	61		6,820	241	161	43

During these years the Borough was divided into Seven Districts (see Table II (A)—Local Government Board.)

Births.—The number of births registered were 3,299, and corresponded to an annual rate of 30·6, and the **natural increase** for the year, or the excess of births over deaths, was 1,489. In the 76 great towns of England and Wales the birth rate was 27·0 per 1,000. Of the total births, 74, or 2·24 per cent., were illegitimate.

Marriages.—The number of marriages during the year 1908 in the district of the Superintendent Registrar, which includes districts outside the Borough boundary, was 1,278, a decrease of 71 on the number of the preceding year.

Deaths.—The deaths registered within your district in the year 1908 numbered 1,886, distributed over the several quarters of the year as follows:—First quarter, 552; second quarter, 433; third quarter, 423; fourth quarter, 478. The sex distribution was: Males, 1,048; females, 838.

The gross figures are subject to the following corrections:—

Total number of deaths registered	..	..	..	1886
Deduct deaths of persons not belonging to the district	..			76
				<hr/> 1810
Add deaths in Institutions outside district (County Asylum) belonging to the County Borough	..			25
				<hr/>
Total	..	..	..	1835

corresponding to an annual death rate of 17·0 per 1,000, as compared with an average of 17·8 during the preceding ten years.

Mortality at Groups of Ages.—Of the 1835 deaths nett at all ages 497 were of infants under one year; 863 between one and sixty years; and 475 were of persons aged sixty and upwards.

The age distribution of the population of Swansea was estimated to be as under in 1908:—

Under one year	..	..	..	2,669
Between one and sixty	..	..	..	98,266
Sixty and upwards	..	..	..	6,685
				<hr/>
Total all ages	..	..	..	107,620

The 497 deaths of infants under one year was in the proportion of 150 to every 1,000 births registered as compared with a ten years' average of 159 per 1,000.

In the 76 great towns the infantile death rate was 129 per 1,000 births, and as recorded in the Registrar-General's quarterly returns ranged from 62 to 201 per 1,000 births.

Among persons aged between one and sixty years the deaths were equal to 8·78 per 1,000. In the 76 great towns the rate was 7·7 per 1,000.

Among persons aged sixty years and upwards the annual death rate in Swansea was 71·0 per 1,000. In the 76 great towns 71·4 per 1,000.

The following Table III. gives the annual birth and death rates (all causes); the death rate from the seven zymotic diseases; and the deaths of infants under one year in proportion to births registered in Swansea and the principal towns in England and Wales in the year 1908.

TABLE III.

BIRTH AND DEATH RATES in some of the Principal Towns in 1908
per 1,000 persons living.

Town.	Birth rate per 1000	Death rate per 1,000 persons living.		Infants under 1 year per 1000 births
		All Causes.	Seven Zymotic Diseases.	
76 Large Towns	27·0	14·9	1·58	129
London	25·4	13·8	1·36	113
Brighton	21·3	14·7	0·63	104
Portsmouth .. .	28·4	13·7	0·96	98
Southampton	26·4	12·9	1·18	113
Reading	22·7	11·8	1·36	100
Norwich	25·3	14·1	1·13	115
Plymouth	22·2	15·0	0·91	129
Bristol	23·1	13·5	1·15	126
Burton-on-Trent	22·1	12·7	1·06	112
Birmingham	28·4	15·9	1·86	145
Leicester	23·4	12·9	1·50	132
Derby	25·9	13·0	0·93	112
Birkenhead	31·5	15·8	1·90	136
Liverpool .. .	31·8	19·2	2·20	142
Oldham	28·0	19·8	2·50	160
Blackburn	25·1	15·9	1·54	150
Preston	27·7	17·9	2·23	154
Huddersfield	24·4	17·0	1·57	111
Hull	30·3	16·1	2·19	145
Middlesborough	35·9	19·7	3·42	159
Newcastle-on-Tyne	29·8	15·9	1·26	137
Newport (Mon.)	32·7	16·2	1·29	133
Cardiff	26·6	12·9	1·10	126
Rhondda	40·3	18·4	3·53	184
Merthyr Tydfil	35·6	19·1	2·51	179
Swansea	30·6	17·0	1·49	150

TABLE IV.

INFANTILE MORTALITY during the year 1908, at certain ages under one year, distinguishing wards:—

DEATHS. ALL CAUSES.	Under 1 week.	1-2 weeks.	2-3 weeks.	3-4 weeks.	Total under 1 month.	1-2 months.	2-3 months.	3-4 months.	4-5 months.	5-6 months.	6-7 months.	7-8 months.	8-9 months.	9-10 months.	10-11 months.	11-12 months.	Total Deaths under 1 year.	Per-centage under 1 month to total under 1 year.
Certified ...	78	28	19	15	140	52	50	48	36	32	19	23	30	23	29	14	496	28·2
Uncertified ...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	100·0
Alexandra ...	10	6	...	...	16	9	12	9	5	5	1	3	6	1	3	1	71	22·5
Brynmelin ...	6	1	...	4	11	5	4	8	4	3	2	3	6	4	4	3	57	19·3
Castle ...	2	1	2	1	6	3	2	1	1	1	...	1	...	...	1	1	17	35·3
East ...	11	4	2	2	19	8	9	5	6	5	3	1	3	5	3	2	69	27·5
Ffynone ...	11	4	...	1	16	4	5	3	3	1	4	1	3	2	...	2	44	36·3
Landore ...	12	3	...	3	18	2	4	3	2	3	3	3	4	2	4	..	48	37·5
Morrison ...	3	2	5	1	11	6	5	3	3	5	2	3	3	2	4	2	49	22·4
St. Helen's ...	8	2	3	1	14	4	3	4	2	3	...	2	2	...	3	1	38	36·8
St. John's ...	11	4	5	1	21	5	3	6	6	4	...	4	3	4	3	2	61	34·4
Victoria ...	5	1	2	1	9	6	3	6	4	2	4	2	...	3	4	...	43	20·9
WholeBorough	79	28	19	15	141	52	50	48	36	32	19	23	30	23	29	14	497	28·3

Infantile Mortality.—The deaths of 497 infants under one year of age belonging to the Borough were registered. The previous ten years' average was 475. The proportion of such deaths to births registered was 150 per 1,000 as compared with a rate during the preceding ten years of 159 per 1,000 births. The rates in the several wards of the Borough ranged from 117 per 1,000 births registered in Landore to 195 per 1,000 in the Alexandra Ward.

It will be seen from Table IV. that of the total deaths under one year over 28 per cent., or nearly one-third, occurred under the age of one month, and an analysis of the table shows that the largest proportion were due to antenatal causes, premature births, congenital defects, inherited weakness, and accidents of birth.

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The influence of illegitimacy in lessening the chances of survival over the first year of life was again very apparent in 1908. The proportion of deaths to births registered in the case of legitimate children was 14·4 per cent., in the case of illegitimate children the proportion was 41·9 per cent.

TABLE VI.

POPULATION, BIRTH RATES and DEATH RATES from certain stated Classes of Disease, distinguishing Wards within the Borough.

DISTRICT.	Population, 1908.	Birth Rate, per 1000.	Death Rate, per 1000.	Death rate, seven Zymotic diseases per 1,000.	Deaths under 1 year per 1000 births.	Diarrhoea death rate per 1000.	Enteritis death rate per 1000.	Phthisis death rate, per 1000.	Other Tubercular diseases death rate per 1000.
Alexandra ..	10,860	33·5	19·4	1·75	195	1·19	0·09	1·56	0·27
Brynmelin ..	10,730	35·5	25·2	3·17	149	0·74	0·09	3·35	0·56
Castle ..	3,720	23·9	18·0	1·88	191	1·61	0·00	1·07	0·00
East ..	13,430	34·0	17·4	0·82	151	0·59	0·22	1·19	0·07
Ffynnone ..	13,730	23·8	13·4	0·80	135	0·43	0·00	1·02	0·00
Landore ..	12,460	32·7	14·4	0·72	117	0·56	0·24	1·36	0·16
Morriston ..	10,310	29·3	14·4	1·45	162	0·39	0·29	1·45	0·09
St. Helen's ..	13,170	24·3	13·3	1·29	119	0·76	0·00	2·12	0·38
St. John's ..	12,390	32·2	16·3	1·37	148	0·24	0·08	1·45	0·48
Victoria ..	6,820	35·3	23·6	3·08	178	2·34	0·00	2·05	0·14
TOTAL ..	107,620	30·6	17·0	1·49	150	0·75	0·11	1·66	0·23

The death rate is highest in the Brynmelin Ward and lowest in St. Helen's. The high death rate in the former case is partially accounted for by the fact that the Union Workhouse and Infirmary are situated in this ward, and many of the deaths which occur there are of old persons who have resided in these institutions for very

TABLE V.—Local Government Board.

INFANTILE MORTALITY DURING THE YEAR 1908.—Deaths from stated Causes, in Weeks and Months under One Year of Age, in the County Borough of Swansea.

CAUSE OF DEATH.		Under 1 Wk.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months.	11-12 Months.	Total Deaths under One Year.
All Causes.	Certified...	78	28	19	15	140	52	50	48	36	32	19	23	30	23	29	14	496
	Uncertified	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Common Infectious Diseases.	Small Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	...	...	...	...	...	1	...	...	1	...	...	3	3	2	4	...	14
	Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoeal Diseases.	Diphtheria: Croup	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
	Whooping Cough	...	...	...	1	1	2	1	...	1	2	2	1	1	1	...	2	14
	Diarrhoea, all forms...	...	...	2	1	3	6	6	13	9	8	2	7	7	1	3	1	66
	Enteritis (<i>Muco-enteritis, Gastro-enteritis</i>)	...	...	...	...	...	...	1	...	2	...	1	...	1	2	1	...	8
Wasting Diseases.	Gastritis, Gastro-intestinal Catarrh	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	2
	Premature Birth	29	10	1	2	42	5	...	2	...	1	...	...	...	...	...	...	50
	Congenital Defects	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Injury at Birth	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculous Diseases.	Want of Breast Milk	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2
	Atrophy, Debility, Marasmus	22	9	6	4	41	10	15	14	5	4	1	1	2	2	4	1	100
	Tuberculous Meningitis	...	...	...	...	...	...	...	1	...	1	...	1	...	...	1	1	5
	Tuberculous Peritonitis: <i>Tabes Mesenterica</i>	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Causes.	Other Tuberculous Diseases (<i>Phthisis</i>)	...	...	...	...	...	2	1	2	2	...	1	1	4	1	1	...	15
	Erysipelas	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Syphilis	...	...	...	...	...	1	1	...	...	...	1	1	...	...	...	...	4
	Rickets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Causes.	Meningitis (<i>not Tuberculous</i>)	...	...	...	...	...	...	2	3	1	1	...	1	1	2	1	...	12
	Convulsions	16	6	5	3	30	21	11	7	7	6	3	2	5	4	4	2	102
	Bronchitis	...	1	1	...	2	7	3	2	2	4	1	2	1	2	2	...	30
	Laryngitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Causes.	Pneumonia	...	...	3	...	3	2	6	2	2	3	2	3	4	4	1	...	36
	Suffocation, overlaying	3	...	...	...	3	2	...	...	...	...	...	...	...	...	...	...	5
ALL CAUSES		79	28	19	15	141	52	50	48	36	32	19	23	30	23	29	14	497

POPULATION (estimated to middle of 1908), 107,620.

Births in the year { Legitimate ... 3225
Illegitimate ... 74

Deaths in the year of { Legitimate Infants ... 466
Illegitimate do. ... 31

Deaths from all Causes at all Ages, 1,835.

$$\begin{array}{r}
 3225 \\
 466000 \\
 \hline
 3225 \\
 14350 \\
 12900 \\
 \hline
 14500
 \end{array}$$

$$\begin{array}{r}
 74 \\
 31000 \\
 \hline
 296 \\
 140 \\
 \hline
 24 \\
 6606
 \end{array}$$

many years, and as their previous residence is oftentimes unknown, the Brynmelyn Ward is debited with these deaths.

Seven “Zymotic” Diseases.—The 161 deaths from all causes included :—

81	attributed to	diarrhœa.
45	„	„ measles.
23	„	„ whooping cough.
7	„	„ scarlet fever.
4	„	„ diphtheria.
1	„	„ enteric fever.

and these 161 deaths were equal to 1·49 per 1,000 from these zymotic diseases, as compared with a previous average for ten years of 2·06 per 1,000. All the zymotic diseases show decreases on the previous average except measles and diarrhœa, which account for 78 per cent. of the deaths from zymotic diseases.

In the 76 great towns the zymotic rate for 1908 was 1·58 per 1,000.

Diarrhœa (zymotic enteritis) caused 81 deaths (previous ten years average 60), equal to an annual rate of 0·75 per 1,000. With the exception of four deaths in adult life all the deaths occurred to children under two years of age.

Whooping Cough caused 23 deaths (previous ten years average 40). All the deaths occurred in children under five years of age.

Measles was very prevalent during the early part of the year, and invaded successively the whole of the Borough. The greater number of deaths occurred in the Brynmelin, Alexandra, St. John's, St. Helen's, and Efyfnone Wards. The only ward from which no death was registered was Morriston. Measles is not a notifiable disease, and the number of cases cannot therefore be recorded; 45 deaths occurred from what was a widespread outbreak as compared with a previous (ten years) average of 37.

School Closure.—In consequence of the prevalence of measles, closure of all departments of the whole of the schools in the Borough (Provided and Non-Provided) was recommended for the first week of the year, and was carried out by the Local Education Authority. Some of the departments of a few of the schools were closed at other periods also, owing to the continued prevalence of measles. Departments of the undermentioned schools were closed for the following periods and for the reasons assigned :—

School.	Department.	Date.	Period.	Disease.
Cwm ...	Mixed and Infants ...	Jan. ...	1 week ...	Measles
Danygraig ...	Boys, Girls & Infants ...	,, ...	1 ,, ...	,,
Pentrechwyth..	Infants ...	,, ...	1 ,, ...	,,
Rutland St. ...	Boys, Girls & Infants ...	,, ...	1 ,, ...	,,
St. Thomas ...	,, ,, ...	,, ...	1 ,, ...	,,
St. Helen's ...	,, ,, ...	,, ...	1 ,, ...	,,
St. Helen's ...	Infants ...	Feb. ...	2 ,, ...	,,
Brynmill ...	Boys, Girls & Infants ...	Jan. ...	1 ,, ...	,,
Terrace Road...	,, ,, ...	,, ...	1 ,, ...	,,
Oxford Street ..	,, ,, ...	,, ...	1 ,, ...	,,
Brynhyfryd ...	,, ,, ...	,, ...	1 ,, ...	,,
Dyfatty ...	,, ,, ...	,, ...	1 ,, ...	,,
Manselton ...	,, ,, ...	,, ...	1 ,, ...	,,
Waunwen ...	,, ,, ...	,, ...	1 ,, ...	,,
Waunwen ...	Infants ...	May, June..	4 ,, ...	,,
Hafod ...	Boys, Girls & Infants ...	Jan. ...	1 ,, ...	,,
Morrison ...	,, ,, ...	,, ...	1 ,, ...	,,
Pentrepoth ...	,, ,, ...	,, ...	1 ,, ...	,,
Plasmarl ...	,, ,, ...	,, ...	1 ,, ...	,,
St. Joseph's ...	,, ,, ...	,, ...	1 ,, ...	,,
St. David's ...	Mixed and Infants ...	,, ...	1 ,, ...	,,
St. Iltyd's ...	,, ,, ...	,, ...	1 ,, ...	,,
St. Thomas (Ch. of E.) ...	Infants ...	,, ..	1 ,, ..	,,
York Place ...	Girls and Infants ...	,, ...	1 ,, ...	,,
Christ Church..	Infants ...	Jan, Mar.	3 ,, ...	,,
Cwmbwrla ...	Mixed and Infants ...	Jan. ...	1 ,, ...	,,
Parochial ...	,, ,, ...	,, ...	1 ,, ...	,,
Graig ...	Infants ...	,, ...	1 ,, ...	,,

Diphtheria (including “membranous croup”)—cases, 49 ; deaths, 4 ; equal to an annual rate of 0·037 per 1000. The incidence of the disease during 1908 was *the lowest of any year since the commencement of diphtheria prevalence*. The following table shows the mortality and the age distribution in the several wards of the Borough :—

	Cases.	Deaths.	Case fatality per cent.
Alexandra	1	—	0·0
Brynmelin	6	1	16·6
Castle	1	—	0·0
East	3	—	0·0
Ffynone	14	—	0·0
Landore	5	—	0·0
Morrison	9	—	0·0

			Cases.		Deaths.	Cases fatality per cent.
St. Helen's	..	..	2	..	1	.. 50·0
St. John's	..	..	4	..	2	.. 50·0
Victoria	..	..	4	..	—	.. 0·0
<hr/>						
Total, 1908	..	..	49		4	8·2
1907	..	..	84		12	14·3
1906	..	..	115		7	6·1
1905	..	..	161		18	11·1
1904	..	..	216		24	11·1
1903	..	..	134		21	15·6
1902	..	..	199		24	12·0
1901	..	..	198		14	7·0
1900	..	..	494		61	12·3
1899	..	..	837		140	16·7
1898 (6 months)	..	..	503		121	24·2

Age Distribution of Diphtheria (Cases for 11 years):—

	1898.	1899.	1900	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908
Under 1 year	... 2 ...	5 ...	10 ...	3 ...	2 ...	6 ...	3 ...	4 ...	0 ...	2 ...	1
Between 1 and 3	... 68 ...	90 ...	52 ...	23 ...	17 ...	23 ...	22 ..	22 ..	18 ...	12 ...	2
„ 3 „	5 ..	107 ...	174 ...	97 ...	21 ...	40 ...	25 ...	43 ...	42 ...	17 ...	12
„ 5 „	10 ..	201 ...	285 ...	148 ...	63 ...	60 ...	28 ...	72 ...	41 ..	39 ...	19
„ 10 „	13 ...	42 ...	87 ...	62 ...	23 ...	20 ...	13 ...	28 ...	16 ...	8 ...	4
„ 13 „	20 ...	42 ...	91 ...	45 ...	27 ...	22 ...	16 ...	24 ...	15 ...	11 ...	3
20 and upwards	... 41 ...	105 ...	80 ...	38 ...	38 ..	23 ...	24 ..	21 ...	22 ...	20 ...	8
Total	... ..	503	837	494	198	199	134	216	161	115	49

Enteric Fever.—Cases 35, equal to an attack rate of 0·32 per 1,000; deaths 1, equal to an annual rate of mortality of 0·009 per 1,000. The attack rate and the mortality rate from enteric fever during 1908 were *the lowest ever recorded*. The mortality rate for enteric fever in the 76 great towns in 1908 was 0·07 per 1,000.

Scarlet Fever.—Cases, 208; deaths, 7; equal to an annual rate of 0·06 per 1,000 with case fatality of 3·3 per cent. The notifications received were the lowest on record.

Of the cases notified 39 or 19 per cent. were treated in the Borough Hospital.

Small Pox.—No death from small pox has occurred in Swansea during the past six years, and only *two* cases have been notified during the same period.

Cholera.—During the month of September a man was admitted to the Borough Fever Hospital, from the steamship “Barnton,” which arrived in the Port on Sept. 21st. The vessel came from St. Petersburg and Kronstadt, which were cholera infected ports, and had lain along side another vessel on which a death took place later from cholera. During the voyage to Swansea there was a certain amount of diarrhœa among the crew. At the request of Dr. A. Hanson, the medical officer for the Port, I made a bacteriological examination of the evacuations but found no cholera organisms present. The case proved to be one of enteric fever.

Cerebro-spinal Meningitis.—This disease, with the consent of the Local Government Board, was made notifiable for a period of four months, June 4th to Sept. 4th. 63 cases occurred during the year, of which 50 died; a percentage mortality of 79·4. An exhaustive report on the outbreak will be found on pages 61 to 96.

Tuberculosis.—The deaths from tuberculous disease, 204 in number, compared with 226 in the preceding year, and included **Phthisis** (pulmonary consumption), 179; or one in 10·2 of the deaths from all causes, and equal to 1·66 per 1,000 of the population. Other tubercular diseases caused 25 deaths, equal to 0·23 per 1,000, as compared with 64 deaths for the year 1907. Enquiry was made in regard to all deaths from phthisis with a view to carrying out measures of disinfection in the house with the following result:—

Rooms disinfected by Sanitary Authority	...	..	98
Rooms cleansed under direction of Sanitary Authority			
but disinfection declined	...	..	57
Bedding destroyed or disinfected	...	...	4
Deaths from phthisis in public institutions	..	...	27

The following list of precautions for the prevention of the spread of pulmonary tuberculosis has been drawn up by me, and is handed in at houses where there are cases of phthisis. An inspector explains the various points mentioned, and impresses upon the residents the great importance of carrying out the recommendations contained therein. On January 1st, 1909 (under the Public Health Tuberculosis Regulations of 1908), phthisis becomes a notifiable disease in those cases which are in receipt of parish relief, or resident in a poor law institution.

Precautions for the Prevention of Consumption:—

PUBLIC HEALTH OFFICES,
SWANSEA.

Consumption is an infectious disease. It is preventable, and it is curable.

It is caused by a minute living organism or germ which is rarely inherited, but which is introduced in to the body from without, after birth. What is inherited is a poor vitality of certain cells of the body which are unable to destroy the germ when it has become accidentally introduced into the system. To prevent Consumption it is necessary:—

- (i.) To avoid all those means by which the germ may be introduced into the body.
- (ii.) To avoid all those causes which enfeeble the vitality of the cells of the body, and so render them unable to destroy the germ should it become introduced.

In order to prevent the germ from being introduced in to the body from without, the following precautions should be adopted:—

- (i.) No milk should be used which has not been thoroughly boiled.
- (ii.) All meat should be thoroughly well cooked before being eaten.
- (iii.) *The expectoration coughed up by a consumptive patient should, as far as possible, be burned. The patient should never spit about the place, as the expectoration will become dry and converted into dust, and the germs are thus scattered about in the air and breathed into the bodies of others, this being one of the commonest ways in which the disease is spread to healthy people. A patient should, as far as possible, spit into a vessel containing some disinfectant, and not into a handkerchief which is allowed to dry. The contents of the vessel can be emptied down the drain, or, better still, burned. For wiping the mouth, paper handkerchiefs should be used, and these should then be thrown on the fire and burned.*
- (iv.) In cleaning rooms which are occupied by a consumptive patient, avoid stirring up dust by using damp dusters for furniture, and moist tea leaves or damp sawdust before

sweeping the floors. After use, the dusters should be boiled and the tea leaves or sawdust burned.

- (v.) A consumptive patient should have his or her own knife, fork and spoon, and should always eat off the same plate and drink from the same cup. After use these should be boiled. They should never be used by any other member of the family.
- (vi.) A consumptive person should never partake of the Holy Communion where more than one person drinks out of the same Cup. Individual Communion Cups should always be used in all places of Divine Worship.
- (vii.) The kissing of a consumptive patient should always be avoided.
- (viii.) A consumptive woman should not suckle a child.
- (ix.) A consumptive person should sleep alone.
- (x.) Domestic pets, such as birds or cats, when suffering from chronic coughs, should not be kept, as they may themselves be suffering from Consumption.
- (xi.) All rooms occupied by Consumptives should be thoroughly ventilated, well lighted and dry, and should be on that side of the house which faces the direct rays of the sun. No chimney should ever be blocked up, and windows should be kept open day and night.
- (xii.) Children suffering from chronic cough should be excluded from attending at school unless certified not to be suffering from consumption.
- (xiii.) After a death has occurred in a house from Consumption the premises should be disinfected by the Local Authority, in the same manner as it is done in the case of infectious diseases.

In order to avoid all those causes which enfeeble the vitality of the cells of the body, the following precautions should be adopted:—

- (1) Live as much as possible in the open air.
- (2) Bask in the sunshine as much as you can. The sun's rays have an enormous healing effect upon the body.
- (3) The surface of the body should be regularly cleansed.

- (4) Take plenty of plain but nourishing food, such as bacon, eggs, milk, butter and fats. This should be done at regular intervals. Drink as much milk as possible.
- (5) Go to bed early, have a long night's rest. Sleep with your window wide open.
- (6) Avoid excesses of all kinds (*e.g.*, smoking, drinking).
- (7) Avoid crowded assemblies or rooms.
- (8) Take regular exercise proportionate to your strength, but avoid violent exercise, or excessive physical labour.
- (9) Wherever practicable, electric light should be used for lighting purposes in dwelling houses and other occupied buildings, as nothing tends more to the production of Consumption than the breathing of an atmosphere charged with the products of combustion, whether such products are the result of overcrowding or otherwise.
- (10) All affections of the lungs should be attended to and cured as quickly as possible, as a congested lung is in a condition favourable for the germ of Consumption to live and multiply.
- (11) Any nuisance or sanitary defect should be at once reported to the Chief Sanitary Inspector, Public Health Offices, Swansea; and in the event of a death, or the removal, of a consumptive person, application should be made to have the room disinfected. This will be carried out by the Sanitary Authority free of cost.

DAVID J. MORGAN, M.A., M.D., D.P.H.,
Medical Officer of Health.

Decline of Phthisis Mortality.—For the purpose of analysis and comparison I append a comparative statement of the phthisis mortality of Swansea during the past 60 years:—

Deaths from Phthisis (above 5 years).

Period.	Proportion to total deaths, both sexes.		Death rate per 1,000 of Population.	
1849-53	1 in 9	2·6
1863-65	.	..	1 in 10	2·4
1865-73	1 in 10·6	2·2
1873-75	1 in 11·3	2·28
1876-85	1 in 10·98	1·87
1886-95	1 in 12·3	1·64
1896-1905	1 in 12·31	1·45
1906-1908 (3 years) ..			1 in 11·9	1·41

It will be seen that there has been a progressive decline in the phthisis death rate per 1,000 of the population (at ages above 5 years), amounting to 46 per cent. on the early period. The improvement is not so apparent as regards the proportion of phthisis deaths to deaths from all causes, and this arises from the fact that the general rate of mortality has also undergone improvement during the same period.

Public Health (Tuberculosis) Regulations, 1908. — As empowered by Sec. 130 of the Public Health Act, 1875, amended by the Public Health Act, 1896, the Local Government Board have issued an Order dated the 18th December, 1908, and known as the Public Health (Tuberculosis) Regulations, 1908, for preventing the spread of the infectious disease known as Pulmonary Tuberculosis or Phthisis. The Regulations, which came into force on the 1st of January, 1909, in every Urban and Rural District in England and Wales, contain certain provisions for the compulsory notification within 48 hours to the Medical Officer of the district in which the patient is then residing, of all cases of Pulmonary Tuberculosis occurring amongst “poor people” (viz., those who are or have been in receipt of relief from the poor rate) by every Medical Officer of a Poor Law Institution and every District Medical Officer. Similarly, a change of residence must be notified by a Relieving Officer.

The remuneration payable by the Borough Council for notifications received by the Medical Officer of Health shall be, in the case of Medical Officers, 1/- for the first notification, 6d. for the second or subsequent notification, and in the case of a Relieving Officer, or any other officer, 3d. for each notification.

The Regulations expressly state (Article IX.) that there shall be no authority for a Council or any person to put into force any enactment which renders the person suffering liable to a penalty or subjects him to any restriction, prohibition, or disability affecting himself, or his employment, occupation, means of livelihood, or residence, on the ground of his suffering from Pulmonary Tuberculosis. Subject to this restriction, a Council, on the advice of their Medical Officer of Health, may, for the purpose of preventing the spread of infection from Pulmonary Tuberculosis :

- (1) Take all such measures, &c., for the disinfecting and destruction of infected articles, or the cleansing or disinfecting of premises; for the safe disposal or destruction of infectious

material produced and discharged as a result of Pulmonary Tuberculosis; and otherwise for the prevention of the spread of infection from such material.

(2) Afford or supply all such assistance, facilities, or articles as will obviate, or remove, or diminish the risk of infection arising from the conditions affecting the use or occupation of any room, when used or occupied by the poor person as a sleeping apartment; and

(3) Furnish for the use of the poor person, on loan or otherwise, any appliance, apparatus, or utensil which will be of assistance for the purpose of any precaution against the spread of infection.

(4) Provide and distribute placards, handbills or leaflets, containing suitable summaries of information and instruction respecting pulmonary tuberculosis, and the precautions to be taken against the spread of infection from that disease.

Your late Medical Officer, Dr. Ebenezer Davies, issued a memorandum on the precautions to be taken to prevent the spread of phthisis, and disinfection of clothes and rooms, &c., is offered in every case where a death has occurred, and in every other case when requested by a medical practitioner.

Cancer (Malignant Disease) 70 deaths, shows a reduction of 11 on the previous year, a rate of 6·50 per 10,000, but is still above the 10 years average. I append a tabular statement of the mortality from “malignant disease” during four decennial periods in Swansea.

1866-75 (10 years)	150 deaths,	annual rate per 10,000	...2·88
1876-85	285	„ „ „ „	...4·30
1886-95	497	„ „ „ „	...6·50
1896-1905	683	„ „ „ „	...7·11
1906-1908 (3 years)	241	„ „ „ „	...7·53

Deaths from Violence or Accidental Causes were 89 in number, and included the following :—burns and scalds, 23; suffocation overlaying, 5; suicide 3; drowning, 11. This list does not include deaths of non-residents from accidental causes, most of which occurred in the Swansea Hospital, whither they had been sent for treatment.

Borough Hospital—The following is a summary of the cases treated at the Isolation Hospital during the past year :—

Disease.	Remaini'g Dec. 29, 1907.	Admitted	Dis- charged.	Died.	Remain'g Jan. 2nd, 1909.
Scarlet Fever ..	8	39	42	..	5
Diphtheria ..	..	9	7	..	2
Enteric Fever ..	2	26	21	3	4
Cerebrospinal Fever ..	..	18	9	7	2
Meningitis ..	..	1	..	1	..
Erysipelas ..	..	1	1	..	..
Chicken Pox ..	..	1	1	..	..
Influenza ..	..	1	..	..	1
Laryngitis ..	..	1	1	..	..
Tuberculosis ..	1	..	..	1	..
Hepatic Abscess, Peritonitis ..	..	1	..	1	..
Observation ..	..	3	2	..	1
Total ..	11	101	84	13	15

Included in the above are the following :—

Removed from ships—enteric fever, 5; Hepatic Abscess Peritonitis, 1. Total 6.

From Union Workhouse — enteric fever, 4; Cerebrospinal Meningitis, 2; and Observation 1. Total 7.

From Mumbles—Scarlet Fever 4; Erysipelas 1. Total 5.

General Hospital—Enteric Fever, 1.

Training College—Scarlet Fever, 1.

Notification of Infectious Sickness.—The facts in regard to notification will be found in the subjoined tabular statements, which record the number of cases of infectious sickness notified in 1908, and the ten years preceding.

It should be noted that the number of cases of infectious diseases notified during the year is the lowest ever recorded, having steadily declined from 1200 in 1899 to 374 in 1908.

A. (1908.)

Disease.		Number Notified.	Deaths.	Case Fatality per cent.
Scarlet Fever	..	208	7	3·3
Diphtheria	..	49	4	8·2
Cerebrospinal Fever	..	46	31	67·4
Enteric Fever	..	35	1	2·8
Erysipelas	..	29	2	6·9
Puerperal Fever	..	7	3	42·9
Total	..	374	48	12·8

B.—Notification of Infectious Sickness, 11 years, 1898-1908.

Disease.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Scarlet Fever	290	270	312	555	500	448	507	454	348	272	208
Diphtheria	503	837	494	198	199	134	216	161	115	84	49
Enteric Fever	94	92	83	100	52	85	52	50	63	46	35
Small Pox	..	1	1	..	187	..	1	1	..	..	..
Erysipelas	..	..	..	..	15	37	25	25	44	24	29
Puerperal Fever	6	..	8	1	6	8	3	9	6	12	7
Cerebro Spinal Fever	..	..	..	..	..	..	..	..	..	1	46
Pyrexia ..	..	..	..	..	..	..	..	..	..	1	..
Totals	893	1200	898	854	959	712	804	700	576	440	374
Fees paid for notifications	111 12 6	150 0 0	112 5 0	106 15 0	119 17 6	89 0 0	100 10 0	87 10 0	72 0 0	55 0 0	46 15 0

The following summary gives the average for 10 years, as compared with the year 1908.

	Periods.	
	Ten Years, 1898-1907.	Year 1908.
Annual number of notifications ..	803 ..	374
Annual cost to Sanitary Authority £100 9 0 ..		£46 15 0
Proportion to population per 10,000	81 ..	35

Deaths in Public Institutions.—Deaths occurring in Public Institutions were as follows:—Union Workhouse, 152; General Hospital, 151; Borough Hospital, 13; total 316. From these 66 have to be deducted who were admitted from outside districts on account of illness. The deaths of 25 persons belonging to the County Borough of Swansea, who died at the Bridgend County Asylum, have been included in the nett deaths belonging to the district. (See Table I. Local Government Board).

Four other deaths of non-residents occurred in private institutions; one death registered in the district took place at sea, three deaths of non-residents at a railway station, and two took place in other parts of the Borough, thus bringing up to 76 the deaths of persons not belonging to the district.

Common Lodging-houses.—There are at present 25 common lodging-houses on the register, two have been added during the year with accommodation for 60 lodgers. The houses were regularly inspected, 779 day inspections and 190 night inspections having been made (see page 99).

Disinfection.—During the year 192 rooms were disinfected after notified infectious sickness, and 98 rooms were disinfected in houses where deaths from pulmonary tuberculosis (phthisis) had occurred. At the disinfecting station of the Sanitary Authority 3313 articles of clothing or bedding were disinfected by steam under pressure.

Factory and Workshops' Act, 1901.—At the end of the year there were 623 workshops on the register, and include dressmakers, 128; tailors and tailoresses, 112; bakers, 110; bootmakers, 75; all others, 198. **There are no underground bakehouses within the Borough.** The details of the results of inspection will be found in the following tables:—

Factories, Workshops, Laundries, Workplaces, and Homework.

I.—INSPECTION.

Including Inspections made by Sanitary Inspectors or
Inspectors of Nuisances.

PREMISES. (1)	Number of		
	In- spections. (2)	Written Notices. (3)	Prosecutions. (4)
Factories (including Factory Laundries)	98	9	...
Workshops (including Workshop Laundries)	1294	103	...
Workplaces (other than outworkers premises included in Part III. of this Report.)	18	2	...
Total	1410	114	...

2.—DEFECTS FOUND.

PARTICULARS.	Number of Defects.			Number of Prosecutions
	Found.	Remedied.	Referred to H.M. Inspector.	
<i>Offences under the Public Health Acts :</i>				
Want of cleanliness	37	37	...	...
Want of ventilation ...	4	4	...	...
Overcrowding	3	3	...	...
Want of drainage of floors ...	...	...	...	...
Other nuisances ..	75	75	...	...
Sanitary accommodation :				
Insufficient	1	1	...	...
Unsuitable or defective ...	42	42	...	...
Not separate for sexes ...	...	..	..	...
<i>Offences under the Factory and Workshop Act :</i>				
Illegal occupation of under- ground bakehouse (S. 101)	...	...	...	...
Breach of special sanitary re- quirements for bakehouses (SS. 97 to 100)... ..	...	...	...	...
Other offences	16	...	16	...
Total	178	162	16	...

3.—HOME WORK.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.										OUTWORK IN UNWHOLESALE PREMISES, SECTION 108.				OUTWORK IN INFECTED PREMISES, SECTIONS 109, 110.				
	Lists received from Employers.						Addresses of Outworkers.		Prosecutions.		Inspection of Outworkers' premises.	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
	Twice in the year.		Once in the year.		Outworkers.	Con-tractors	Work-men.	Received from other Councils.	Forwarded to other Councils.	Failing to keep inspection of lists.									Failing to send lists.
	Lists.	Con-tractors	Work-men.	Outworkers.																Con-tractors	Work-men.
					(2)	(3)	(4)	(5)	(6)	(7)									(8)			(9)	(10)	(11)
(1)																			
Wearing Apparel—	12	35	66	15	44	173	..	..	..	..	254	..	..	..	..	..	..	..
(1) making, &c.	
(2) cleaning and washing	
Lace, lace curtains and nets	
Artificial flowers	
Nets, other than wire nets	
Tents	
Sacks	
Furniture and upholstery	
Fur Pulling	
Feather sorting	
Umbrellas, &c.	
Carding, &c., of buttons, &c.	
Paper bags and boxes	
Basket making	
Brush making	
Racquet and tennis balls	
Stuffed Toys...	
File making	
Electro-plate...	
Cables and chains	
Anchors and grapnels	
Cart gear	
Locks, latches and keys	
Pea picking	
Total	12	35	66	15	44	173	..	..	..	..	254	..	..	..	..	..	..	..

4.—REGISTERED WORKSHOPS.

Workshops on Register (S. 131) at end of the year.					Number.
Important classes of workshops, such as workshop bakehouses, may be enumerated here.	Dressmakers	...	...	...	128
	Tailors and Tailoresses	...	...	...	112
	Bakers	...	...	...	110
	Bootmakers, &c.	...	...	...	75
	Other Trades	...	...	...	198
Total Number of Workshops on Register					623

5.—OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to Affix Abstract of the Factory and Workshop Act (S. 133)	16
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (S. 5).	Notified by H.M. Inspector ... 24
	Reports (of action taken) sent to H.M. Inspector... 24
Other	26
Underground Bakehouses (S. 101) :—	
Certificates granted during the year ... ..	...
In use at the end of the year ... ..	...

Houses Unfit for Habitation. — Action in regard to houses in bad sanitary condition was limited for the most part to notices under the Public Health Act dealing with nuisances. During the year 1908 proceedings had been instituted under the provisions of the Housing of the Working Classes Act, 1890, in regard to 7 houses, and these were repaired and made fit for human habitation. At the Local Government Board Inquiries under the Housing of the Working Classes Acts, 1890-1903, held on June 11th, by F. H. Tullock Esq., M.I.C.E., and on October 1st by Edgar Dudley, Esq., F.S.I., the following information was given by me :—

1. That there were on those dates no vacant houses in the Borough, suitable for the working classes, at rentals ranging from 4/- to 7/6 per week.
2. That there were within the Borough 173 houses known to be unfit for habitation, of which about one-third could be made fit, and two-thirds which ought to be demolished and rebuilt.

Owing to the dearth of houses in the Borough, the Works and Sanitary Committee (which is fully alive to the condition of the poorer houses in the Borough) has thought fit not to proceed to extremes by enforcing closing orders obtained from the Justices, for more accommodation is undoubtedly needed in the Borough, and to close certain unsuitable houses to-day would simply mean driving the occupants into other houses which are now full, and so lead to overcrowding, which is perhaps a worse evil than to allow them to remain until new houses are built.

HOUSING OF THE WORKING CLASSES.

The following is a summary of the action taken by the Corporation during the past year :—

A contract has been entered into for the erection of

(1) 44 double tenement houses.

(2) 55 single houses

on the Baptist Well Estate, providing accommodation for 143 families.

Sanction has also been obtained from the Local Government Board for the erection of 8 houses on the Mayhill Estate.

The Corporation also contemplate (subject to the consent of the L.G.B.) erecting 18 houses at Plasmarl terrace.

The total number of houses built up to the present by the Swansea Corporation is—

Well street	..	..	4
Colbourne street	..	..	33
			<hr/>
			37
			<hr/>

I am indebted for the foregoing to Mr. Marcus Hoskins, Corporation Estate Agent.

Food and Drugs Act.—The number of samples analysed during the year was 280, giving an average of one to every 384 of the population. The number of samples reported against was 22, equal to 7·8 per cent. of the total number (see Chief Inspector's report, page 101)

Milk.—The number of samples examined was 200, or 71 per cent. of all samples taken. Adulteration was detected in 19 cases, equal to 9·5 per cent. as compared with a previous seven years' average of 10·0 per cent. Proceedings before justices were taken in 13 cases of adulteration, resulting in 7 convictions, and penalties amounting in the aggregate to £28 8s. 0d.. The remaining cases were withdrawn or dismissed on the ground of a warranty defence or other reasons.

Meat Condemned.—Mr. Gladstone Davies, the Veterinary Inspector, reports as follows:—

Below you will find particulars of meat condemned, as being unfit for human food, within the borough during the year 1908:—

Beef.—There were 19 carcasses; and 12 partial, made up as follows—

		Whole.		Partial.
Tuberculosis	..	14	..	9
Dropsical	.. ..	3	..	—
Peritonitis	.. ..	1	..	—
Injury	.. ..	1	..	3
		<hr/>		<hr/>
Total	..	19	..	12
		<hr/>		<hr/>

Calves 12.

Dropsical	..	..	..	8
Decomposition	..	..	..	4
				<hr/>
Total	..	..	..	12
				<hr/>

Sheep 4.

Dropsical	..	..	..	3
Injury ..	..	..	..	1
				<hr/>
Total	..	..	..	4
				<hr/>

Water Analysis.—Twenty-four samples of water were reported on by Mr. Seyler, your Borough Analyst, and included 17 from the town service, and seven from wells or springs.

The following are the localities from where samples were obtained, and the results of the analysis :—

	Source.	Result.
65, Bonymaen Road ..	Town supply ..	Satisfactory.
Morrison Market ..	..	..
11, Fairfield Terrace ..	Spring ..	..
Andrews Terrace ..	Town supply ..	..
22, Hoo Street ..	..	..
23, Mysydd Terrace ..	..	..
31, Page Street ..	..	..
41, Gibbet Hill Road ..	..	..
409, Pentregethin Road ..	..	..
10, Somerset Place ..	..	..
Graig, Trewyddfa, Landore ..	Well ..	..
30, Carmarthen Road ..	Town supply ..	..
36, Wern Terrace ..	..	..
Graig, Trewyddfa, Landore ..	Spring ..	..
Pontyshute ..	..	..
Pontyshute ..	Well ..	..
6 Williams Place, Greenhill ..	Town supply ..	Unsatisfactory (dead fish in main).
Pontyshute ..	Spring ..	Satisfactory
Townhill Reservoir ..	Town supply ..	..
Tigwl Farm, Foxhole ..	Well ..	Unsatisfactory
St. Thomas Reservoir ..	Town supply ..	Satisfactory
Coffee Tavern, High Street ..	..	..
34, Neath Road, Hafod ..	..	..
174a, High Street ..	..	..

Plumbo-solvent Action :—Samples of Water were tested for plumbo-solvent action, with the result that a faint trace of lead passed into solution,

Bacteriological Examination (Cardiff and County Laboratory by Dr. A. Scholberg).—The following Table shows the number and description of water and other specimens examined :—

WATER.	Source.		Result.
65, Bonymaen Road	..	Town supply	.. Satisfactory
Morrison Market	..	„	.. „
10, Somerset Place	..	„	.. „
11, Fairfield Terrace	..	Spring	.. of moderate purity
22, Millbrook Street	..	Town supply	.. „
30, Carmarthen Road	..	„	.. Satisfactory
Alexandra Road..	..	„	.. Moderate purity
36, Wern Terrace	..	„	.. Satisfactory
Pontyshute	Spring	.. Doubtful purity
Pontyshute	Well	.. Evidence of con- tamination.
Coffee Tavern, High Street	..	Storage tank	.. „
Pontyshute	Well	.. „
Townhill Reservoir	..	Town supply	.. Satisfactory
Tirgwl Farm, Foxhole	..	Well	.. Evidence of con- tamination
St. Thomas Reservoir	..	Town supply	.. Moderate purity
Coffee Tavern, High Street	..	Storage tank	.. „
34, Neath Road	Town supply	.. „
174a High Street	„	.. „

DISEASED MATERIAL—

Enteric, for diagnosis	..	30—19 positive, 11 negative.
Diphtheria, for diagnosis	..	2 .. 2 negative.

The following report upon the water supply of Swansea was received by me from R. H. Wyrill, Esq., M. Inst., C.E., the Borough Engineer :—

The Borough of Swansea receives its water supply from three storage reservoirs situate about ten miles to the north of the town. These reservoirs are fed from the small streams and springs on moorlands; about one-tenth this area is enclosed farm lands principally used as pastures, the elevation above sea level being too great for growing crops. The farms are inspected by reservoir keepers weekly who report to the Medical Officer of Health.

This supply is in ordinary years about 3,000,000 gallons per day. The works were constructed between 1863 to 1887.

An additional supply has now been made available for Swansea by the construction of a large storage reservoir about 30 miles to the north-east of Swansea and situate on the old red sandstone formation of Breconshire. The first instalment of these works is completed and is now capable of delivering a daily quantity of 2,500,000 gallons into the town. There is a further quantity at present running to waste which is estimated at about 5 or 6 million gallons per day, and will be made available immediately on the completion of the second line of pipes when the requirements demand this. This reservoir is at a level of 1,000 feet above the sea, which is about 400 feet above the highest inhabited part of the borough. The gathering ground consists of moorlands, and there are only two shepherds' huts in this area. There is no source of contamination, with the exception of the sheep on the mountains.

There are no filters in connection with any portion of the supply of Swansea; after violent floods the water is coloured until it has stood some time in the reservoirs.

The water from the Velindre source is remarkably soft, varying from about $1\frac{1}{4}$ degrees of hardness in winter time to $1\frac{3}{4}$ degrees in summer time.

The Cray water is about 5 degrees of hardness, but so far as I am aware, no plumbo-solvent action has been detected.

MIDWIVES' ACT, 1902.

Midwives enrolled under the Act resident in Borough, 68;	
resident outside but practising in Borough, 11; Total ..	79

Midwives entitled to enrolment by having been in practice previous to 31st July, 1901 ("bona fides") ..	65
---	----

Midwives qualified by holding certificates in midwifery from institutions or societies recognised by the Central Midwives' Board	14
--	----

Of the certificated midwives, one is engaged at the Swansea Union Workhouse, and one at the Queen Victoria Jubilee Nursing Institute, Gore Terrace, Swansea.

Puerperal fever cases notified	..	..	..	7
„ „ deaths	..	..	..	3
Notices received of sending for medical aid	..	..	..	55
„ „ of still births	..	..	..	67
Changes of address of midwives reported	..	..	..	10
Midwives who have removed from Borough	..	..	..	1
Midwives retired from practice	..	..	..	1
Deaths of midwives reported	..	..	..	2

Your Inspector of Midwives, Mrs. Horspool, reports as follows:—

Visits paid to midwives at their homes	..	..	..	364
Visits to newly-born infants	..	..	..	2806
Revisits	..	..	..	677
Advised medical help	..	..	..	13
Children's eyes attended to under directions of medical attendant	..	..	..	9

Training Centre for Pupil Midwives.—Three courses, of 24 lectures each, have been given during the past year by Dr. F. Knight at the Swansea General Hospital.

For the purpose of practical instruction by actual attendance on lying-in cases during confinement, the approval of the Central Midwives Board has been granted to the undermentioned trained midwives in Swansea for that purpose:—

Mrs. Prudence Jenkins, Pencae, The Avenue, Sketty.

Mrs. Kate McAughtry, 104, King Edward's Road.

Mrs. Lavinia Nash, 37, Sebastopol Street, St, Thomas.

Miss Hannah Young, George Street, Swansea.

Miss Watkins, Robert Street, Manselton.

Miss Catherine S. Crabb, 6, Gore Terrace.

Miss Rosa H. Elwin, 6, Gore Terrace.

The following, the second annual report, was presented by Dr. F. Knight, Lecturer to Midwives under the Swansea Supervising Authority:—

GENTLEMEN,

(1) **Lectures.**—During the past year I have given three courses of lectures. The first was attended by 5 pupils, the second by 11, and the third by 10. Fees amounting to £34 13s. 0d. have been paid to

the Borough Accountant, and to this must be added the sum of £18 18s. 0d., voted by the Council for the Free Studentships, making a total of £53 11s. 0d.

(2) **Practical Instruction.**—The facilities for practical instruction have been increased by the addition of the names of:—Nurse Mary Watkins, Robert Street, Manselton; and Nurses Crabb and Elwin, District Nurses Institute; to the list of Midwives approved by the C.M.B. for signing certificates.

I am very pleased to report that 6 of our pupils have passed the examination of the C.M.B. during the year, their names are:—Mrs. Wale, Brynmill; Mrs. Prothero, Dunvant; Mrs. Smith, Brunswick Street; Mrs. Thomas, Llangennech; Mrs. Archard, Llanelly; Mrs. Lethbridge, Brynymor Road.

3 County pupils sat for the Examination and all passed.

4 Borough pupils sat for the Examination and 3 passed.

(3) **Free Studentships.**—Several of the free students have attended the lectures diligently and punctually, and have appeared to derive great benefit from them. Others have been less interested, and in fact were not capable of comprehending the matters dealt with.

(4.) **Support of Counties.**—Of the 26 pupils attending the lectures, 7, that is more than 25 per cent. came from outside the Borough of Swansea, and of those who were successful in passing the C.M.B. Examination (3), that is 50 per cent. came from the Counties of Glamorgan and Carmarthen. I think, therefore, that we have a strong claim on these County Councils to assist us in carrying on the work. Mr. F. E. Rees has recently visited Swansea on behalf of the Glamorgan County Council Education Committee, and, at his request, I have sent him a written report of our methods of instruction and a list of our apparatus, specimens, &c.

(5) I have to thank Dr. Morgan and his staff at the Sanitary Office, including Mrs. Horspool, for their assistance and co-operation.

FREDERICK KNIGHT, M.D.,
Lecturer.

Notification of Births Act, 1907.—This Act was adopted by the Borough Council during the year, and came into force on August 21st 1908, and from August 21st to end of year 1,137 notifications were received, 564 females and 573 males. At their request, I reported on May 12th to the Works and Sanitary Committee, on the advisability of adopting the Act in this Borough, as follows:—

I am of opinion that the Act should be adopted in this town, for it will undoubtedly tend to an appreciable reduction of the infantile mortality by enabling the Sanitary Authorities to get into immediate touch with certain cases where prompt advice as to the feeding and care of infants would in many cases prevent death, or some permanent defect such as blindness. For many children among the poorer classes lose their eyesight owing to want of proper attention to the eyes at birth. I have seen many such cases, and they should not be allowed to occur, for they are preventable.

Further, your Medical Officer of Health would be enabled to make enquiries into cases of still births, and would endeavour to discover what influences (ante-natal or otherwise) were responsible for such deaths. Under the present Acts for the registration of births, it is not necessary to register such still births, and it is of vital importance that the causes responsible for such, should be enquired into and studied, with a view to the prevention of still births. An examination of all still births by a medical man would tend also to diminish crime, for it is possible that some of the so-called births are those of children born alive.

At the recent National Conference on Infantile Mortality held at Westminster, on the 24th and 25th of March, a resolution to the following effect was passed:—"That this conference expresses its appreciation of Parliament having passed the Notification of Births Act, 1907, and urges upon all Local Authorities the importance of adopting the Act and appointing qualified women to carry out its provisions."

The Act has been adopted in the following places:—Blackburn, Cardiff, Bradford, Southampton, Birmingham, Glasgow, Liverpool, Newcastle-on-Tyne, Cheltenham, Newport, Scarborough, Hastings and Winchester.

The Act, unfortunately, contains no provision for payment to Medical Practitioners or Midwives, for notifying the births. This has

been raised as an objection to the adoption of the Act. Another objection which has been put forward is that it may lead to violation of professional secrecy. In view of the latter objection it does not seem proper to bring forward any question of payment.

Vaccination.—I have received the following return from Mr. Llewellyn Jenkins, Superintendent Registrar, the following statement in regard to vaccination within his district, which comprises not only the County Borough but localities outside. The period is for the year ending July 1st, 1908 :—

Births registered	..	..	..	..	5709
Successfully vaccinated	..	..	..	..	4579
Insusceptible	..	..	..	..	0
Had small-pox	..	...	..	..	0
Died unvaccinated	..	..	..	..	563
Postponed on medical certificate	..	..	..	..	12
Removed to places known	..	..	..	..	17
„ „ not known	..	..	..	...	131
Conscientious objections..	..	..	..	..	165
Not vaccinated or accounted for	..	..	..	..	242

Individual communion cups at the celebration of Holy Communion at places of Divine Worship.—Shortly after my appointment as M.O.H. I sent out the following letter to the governing bodies of the various places of divine worship in the town strongly urging upon them the necessity and advisability of adopting the plan, now in use in many parts of the country, of providing separate drinking vessels for partaking of the wine of the Holy Communion :—

1st May, 1908.

To the Governing Body of

GENTLEMEN,

I wish to bring to your immediate notice a matter which vitally concerns the public health of the residents of the County Borough of Swansea.

In the celebration of the Holy Communion it is customary in this town to pour the wine into a limited number of silver cups (usually four), and these are passed from one person to another, as many as 50 or 100 persons drinking out of one and the same cup. This is greatly to be deplored, as it is a most fruitful method of conveying the

germs of disease (notably pulmonary consumption or phthisis) from unhealthy to healthy people. In this way diseases of the nose, mouth, throat, and lungs are readily communicated. I cannot too strongly condemn this practice, and would respectfully ask you to seriously consider the question of providing separate drinking vessels for each communicant. This is now done in many parts of the country, and in Swansea is, I understand, in vogue at the Argyle Chapel. The vessels are made either of glass or metal, and should be thoroughly cleansed with boiling water after use. They can be obtained through any jeweller, and are made in small sizes, arranged in circular manner on a tray with raised platforms.

It is well known that many persons will not now partake of the wine owing to a fear of contracting disease, and there is no reason why we should sanction in public places methods which would not be tolerated for a single moment in our own houses.

I shall be much obliged if you will be good enough to let me know, as soon as possible, what decision you have come to in the matter.

I am, Gentlemen,

Your obedient Servant,

DAVID J. MORGAN,

Medical Officer of Health.

I am glad to state that my suggestion has been adopted in at least half-a-dozen churches—all of them Nonconformist. Individual communion cups are now in use in the following churches:—

- 1.—Argyle Chapel.
- 2.—Walter Road Congregational Church.
- 3.—Bible Christian Chapel, Neath Road.
- 4.—St. Helen's Congregational Church.
- 5.—Memorial Baptist Chapel.
- 6.—York Street Baptist Chapel.
- 7.—Fleet Street Congregational Church.
- 8.—Rhyddings Congregational Church. (In this case a member of the Church sent an anonymous gift of £10 for the purpose of providing the necessary drinking vessels).

The following are considering the matter, and will probably adopt the individual cup :—

- 1.—Salem Baptist Chapel.
- 2.—Tabernacle Chapel, Landore
- 3.—Mount Zion Chapel.

I have received a great deal of support from the general public in the action which I have taken in the above matter; and in those cases where the individual communion cup has been adopted, the communicants cannot now understand why the old method had been tolerated for such a long period.

Rat Virus.—I have completed a number of experiments with a much advertised rat virus. In all, four series of experiments were performed on rats :—

(1) 4 rats (1 black and 3 brown grey) from a ship in the port, were each given 1 tube of the virus. This had no effect; they appeared to thrive on it.

(2) 3 rats (grey brown) caught at a butcher's shop in High Street, were each fed with 2 tubes of the virus. They had slight diarrhœa after 7 days, but quickly recovered. Three weeks later they were each given the contents of two more tubes. This had no effect.

(3) 1 rat (black) from Adelaide Street, was fed with 1 tube of the virus. It had slight diarrhœa about five days later, which became worse on the seventh day, after which the rat recovered.

(4) 4 rats (3 black and 1 grey) from a vessel in the port were fed each with $1\frac{1}{2}$ tubes of the virus. Seven days later they had slight diarrhœa, but rapidly recovered; 17 days after the first dose they were each given another $2\frac{1}{2}$ tubes. Five days later they had slight diarrhœa, and on the seventh day one of them died, but did not show the post mortem changes usually attributed to the toxic effects of the virus. The others all recovered.

As a result of these experiments, which were carried out at the Public Health Offices, and in which three different strains of virus were

used. I am of opinion that the virus does not fulfil the purpose for which it is usually sold, and I therefore cannot recommend it as a destroying agent.

There are many such viruses on the market at the present time, each of which claims to do the same thing, viz, destroy rodents, and to be innocuous to domestic animals and human beings; but there has recently occurred in London an outbreak of illness caused by vermin-destroying virus, in a business establishment where a large number of persons of each sex are employed. Twelve men became seriously ill with high fever, severe headache, vomiting, diarrhoea, cramp in the abdomen, and in many cases severe collapse. An investigation was made by Dr. Collingridge and Dr. Klein, when it was found that a much-advertised rat virus had been placed about the room and in the pantry adjoining. A tube of this virus was purchased by Dr. Klein, who made an exhaustive series of experiments, and proved conclusively that the organism found in the stools of the patients was identical with the organisms of the virus. In view of the serious issues raised by these facts, and by the increasing use of these and other cultures of a like nature (which are said to be harmless to domestic animals and human beings), Dr. Collingridge proposes to continue the investigations into all such preparations sold within the city.

Public Health Offices.—I have reported on three occasions during the year that the present Public Health Offices are totally unfit and inadequate for the work which has to be carried on in a town of the size and importance of Swansea. The staff has recently been increased, and the accommodation is so limited that my own room has to be utilised by my staff. This room is only 7 feet high and is very unhealthy. The whole building is in a dilapidated condition, and ought to be pulled down and rebuilt. It is damp, badly lighted and badly ventilated, and is a danger to the health of those who have to work in it. The matter is one of extreme urgency, and I trust you will give the same consideration to the proper housing of your sanitary officials as is given to even the poorest inhabitant of the borough.

*2 acet
24 Aug 09*

BYE-LAWS made by the Mayor, Aldermen and Burgesses of the County Borough of Swansea, acting by the Council for the Regulation of the offensive trade of a Dealer in Rags and Bones.

INTERPRETATION OF TERMS.

1. Throughout these bye-laws the expression "the Council" means the Mayor, Aldermen and Burgesses of the County Borough of Swansea acting by the Council.

Local Government Board

Remarks :—

~~FOR THE REGULATION OF THE OFFENSIVE TRADE.~~

Clauses 2 to 4.

There is no authority for bye-laws dealing with these matters. Bye-laws under section 113 of the Public Health Act, 1875, can only regulate offensive trades in order to prevent or diminish the noxious or injurious effects thereof.

- ~~2. Every person who shall apply to the Council for their consent to establish and carry on the trade of a Dealer in Rags and Bones shall furnish a true statement giving the following particulars :
 (1) Situation and boundaries of the premises where the trade is proposed to be carried on.
 (2) Nature and conditions of applicant's tenure of the premises, and
 (3) Detailed description of the premises stating the nature position form superficial area contents and mode of construction of the buildings.~~
- ~~3. Every dealer in rags and bones shall register the premises where his trade is carried on at the office of the Council, and shall, for such purpose, apply by notice in writing, addressed to the Clerk to the Council, stating in full the name, place of abode, place of business, and description of such applicant, and the place where such applicant carries on the trade of a dealer in rags and bones.~~
- ~~4. No person who has established and carries on the trade of a dealer in rags and bones with the consent of the Council shall remove such trade from the premises where it is carried on to any other premises or renew such trade on the same set of premises after having discontinued it for a period of six months or upwards, or enlarge any premises on which it is for the time being carried on without the consent in writing of the Council.~~

5. Every dealer in rags and bones shall thoroughly cleanse and disinfect all rags brought upon the premises where his trade is carried on immediately after the same are so brought upon the premises.

With respect to the trade of a dealer in rags and bones.

The Board do not think this requirement can be regarded as reasonable. They are advised that the danger of infection from rags is not such as would justify the bye-law.

6. A dealer in rags and bones shall not place or store, or cause or suffer to be placed or stored any rags or bones in any part of the premises where his trade is carried on, which is used or occupied as a living or sleeping room, or in any warehouse, building or room that is not provided with proper and sufficient means of ventilation.

7. Every dealer in rags and bones shall cause every part of the interior of the premises where his trade is carried on above the floor or pavement to be washed with hot lime wash twice at least in every year, that is to say, at least once during the periods between the first and twenty-first day of April, and the first and twenty-first day of October.

8. Every dealer in rags and bones shall store all bones in suitable metal vessels or receptacles furnished with closely fitting covers ^Λ and shall cause the same to be removed in similar vessels or receptacles ^Λ from the premises at frequent intervals.

(or in well-tarred bags kept closed

(or bags

The Board suggest that this alternative should be allowed.

9. Every dealer in rags and bones shall at the close of every working day cause every floor or pavement in the premises where his trade is carried on to be thoroughly swept or otherwise cleansed, and all dust and other refuse to be removed.

10. Every dealer in rags and bones shall cause every part of the internal surface of the walls of any building and every floor or pavement upon the premises where his trade is carried on to be kept at all times in good order, condition, and repair, so as to prevent the absorption therein of any liquid filth or refuse or any noxious or injurious matter which may be splashed or may fall or be deposited thereon,

~~GENERAL PROVISIONS.~~

dealer in rags and bones
 11. Every ~~person to whom any of the~~
~~foregoing bye-laws may apply~~ shall
 cause every drain or means of
 drainage upon or in connection
 with the premises where his trade
 is carried on, to be maintained at
 all times in good order and efficient
 action.

dealer in rags and bones
 12. Every ~~person to whom any of~~
~~the foregoing bye-laws may apply~~
 shall, at all reasonable times,
 afford free access to every part of
 the premises where his trade is
 carried on to the Medical Officer of
 Health, the Inspector of Nuis-
 ances, or ^ other Officer of the
 Council, ^ or to any committee
 specially appointed by the Council
 in that behalf, for the purpose
 of inspecting the premises.

(to any
 (duly authorised in that behalf

The Board suggest this addition.

PENALTIES.

13. Every person who shall offend
 against any of the foregoing bye-
 laws shall be liable for every such
 offence to a penalty of five pounds,
 and in the case of a continuing
 offence to a further penalty of
 forty shillings for each day after
 written notice of the offence from
 the Council.

Provided nevertheless that the
 justices or court before whom any
 complaint may be made or any
 proceedings may be taken in
 respect of any such offence may, if
 they think fit, adjudge the pay-
 ment as a penalty, of any sum less
 than the full amount of the penalty
 imposed by this bye-law.

With regard to the observations of the Local Government Board
 I reported to the Works and Sanitary Committee as follows :—

**Bye-laws for the Regulation of the Offensive Trade
 of a Dealer in Rags and Bones :—** The Local Government
 Board have considered the Draft Bye-laws submitted to them, and
 have disallowed clauses relating to extension of existing business, the
 removal of a business to another building or place, and the cleansing or
 disinfection of all rags brought upon the premises, stating as regards
 the first two that “there is no authority for bye-laws dealing with
 these matters, and that bye-laws under Section 113 of the Public

Health Act, 1875, can only regulate offensive trades in order to prevent or diminish the noxious or injurious effects thereof," and as regards the latter (disinfection) that "The Board do not think this requirement can be regarded as reasonable. They are advised that the danger of infection from rags is not such as would justify the bye-law." The work of sorting and tearing up the rags is usually done by women who have to work in an atmosphere laden with dust. As disease cannot be diagnosed with certainty in every case, it is quite possible for phthisis, typhoid and other fevers to be conveyed to the workers in this way, and disinfection of the rags would certainly be an ideal method of diminishing the risk of infection to the workers. The Local Government Board suggest with regard to the storage of bones, that "well-tarred bags kept closed" should be allowed as an alternative to suitable metal vessels or receptacles furnished with closely-fitting covers. I am opposed to this alternative suggestion, for the reason that bags are practically useless, as they are never well tarred, are rarely kept closed, are liable to rot, and are easily eaten through by rats.

County Borough of Swansea.

BYELAWS

Made by the Mayor, Aldermen and Burgesses of the County Borough of Swansea, acting by the Council, with respect to

TENTS, VANS, SHEDS AND SIMILAR STRUCTURES

Used for Human Habitation in the County Borough of Swansea.

INTERPRETATION OF TERMS.

1. Throughout these Byelaws the expression "the Council" means the Mayor, Aldermen and Burgesses of the County Borough of Swansea, acting by the Council, the expression "the District" means the County Borough of Swansea; the expression "infectious disease" means small-pox, cholera, diphtheria, membranous croup, erysipelas, the disease known as scarlatina or scarlet fever, measles, and the fevers known by any of the following names: typhus, typhoid, enteric,

relapsing, continued, or puerperal; the expression "the Medical Officer of Health" means the Medical Officer of Health for the District, or any legally qualified medical practitioner lawfully authorised to act on behalf of such officer; and the expression "the occupier" when used in relation to any tent, van, shed, or similar structure, means the person who for the time being has the charge, management, or control of such tent, van, shed or structure.

FOR PROMOTING CLEANLINESS IN, AND THE HABITABLE CONDITION
OF TENTS, VANS, SHEDS, AND SIMILAR STRUCTURES
USED FOR HUMAN HABITATION.

2. The occupier of a van used for human habitation shall cause the internal surface and the floor thereof to be thoroughly cleansed from time to time as often as may be requisite for keeping the same in a cleanly condition.

3. The occupier of a van, shed, or similar structure used for human habitation, shall for the purpose of securing the habitable condition thereof, provide for the van, shed or structure adequate means of permanent ventilation.

4. The occupier of a tent, van, shed, or similar structure used for human habitation, shall cause the same to be maintained so that it may be reasonably weather-proof at all times when so used.

5. The occupier of a tent, shed or similar structure used for human habitation, shall cause the same to be at all times provided with a suitable dry flooring, or other dry covering for the ground.

6. The occupier of a tent, van, shed or similar structure used for human habitation, shall provide therefor sufficient receptacle or receptacles for the storage of water, with proper coverings, so placed as to be easily accessible, and shall cause the same to be maintained at all times in good order, and shall provide a sufficient supply of wholesome water for the use of the inmates of the tent, van, shed or structure, and shall also cause every part of the interior of any such receptacle to be kept thoroughly clean.

7. Notwithstanding anything in the foregoing byelaw, the person by agreement with or by license from whom any tent, van, shed, or similar structure used for human habitation shall be erected, brought or used on any land, shall provide on such land a sufficient supply of wholesome water for the use of the occupants of the tent, van, shed or structure.

FOR PREVENTING THE SPREAD OF INFECTIOUS DISEASE BY THE PERSONS
INHABITING TENTS, VANS, SHEDS OR SIMILAR STRUCTURES
USED FOR HUMAN HABITATION.

8. The occupier of a tent, van, shed or similar structure used for human habitation, who shall have been informed, or shall have ascertained, that any inmate thereof is ill of an infectious disease, shall thereupon immediately give notice to the Medical Officer of Health.

Provided that this byelaw shall not apply in respect of any infectious disease of which any such notice is required to be given by any statutory provision in force in the District.

9. The occupier of a tent, van, shed or similar structure used for human habitation, who shall have been informed, or shall have ascertained, that any inmate thereof is ill of an infectious disease, shall adopt all reasonable precautions that may be ordered by the Medical Officer of Health for preventing the spread of the disease.

He shall not, at any time while any such inmate is suffering from an infectious disease, cause or allow any other person, except a person in attendance on the inmate, to occupy the tent, van, shed, or similar structure.

10. The occupier of a tent or van used for human habitation, in which any person may within the preceding six weeks have been suffering from an infectious disease, and which has not since been properly disinfected, or, in which any person is at the time suffering from an infectious disease, shall comply with the following regulations:—

- (1.) He shall, before causing or allowing the tent or van to be removed from the site on which it may be, give to the Medical Officer of Health twenty-four hours' notice of the intention to remove the same, and of the place to which the same is proposed to be removed.
- (2.) He shall not cause or allow the tent or van to be brought into any market, fair, race-ground or place which may for the time being be devoted to purposes of public amusement, recreation or resort, or to be removed to any site where, in the opinion of the Medical Officer of Health, there would be danger of spreading infection.
- (3.) He shall, where the Medical Officer of Health may, for the purpose of preventing the spread of infection, order the

removal of the tent or van from any site, remove the same, in compliance with the order of the Medical Officer of Health, to another site within the district to which it may lawfully be removed.

- (4.) He shall, when removing the tent or van, comply with such reasonable conditions as the Medical Officer of Health may impose for the purpose of preventing the spread of infection.
- (5.) He shall not remove the tent or van out of the district until the same has been properly disinfected.

11. In every case where, in pursuance of any statutory provision in that behalf, an order of a justice has been obtained for the removal from a tent, van, shed or similar structure used for human habitation to a hospital, or other place for the reception of the sick, of a person who is suffering from any dangerous infectious disorder, the occupier of the tent, van, shed or structure shall, on being informed of the order, forthwith take all such steps as may be requisite to secure the safe and prompt removal of the said person in compliance with the order, and shall, in and about the removal, adopt all such precautions as, in accordance with any instructions which he may receive from the Medical Officer of Health, may be most suitable to the circumstances of the case.

12. The occupier of a tent, van, shed or similar structure used for human habitation shall, immediately after a person suffering from an infectious disease has been removed therefrom, or has died therein, or has recovered from such disease whilst being therein, give notice of the removal, death, or recovery to the Medical Officer of Health, and shall, as soon as conveniently may be, cause every part of the tent, van, shed or structure to be thoroughly cleansed and disinfected, and shall also cause all bedding, clothing, or other articles therein which may be liable to retain infection to be in like manner cleansed and disinfected unless the Council shall have ordered the same to be destroyed, or unless the Council or the Medical Officer of Health shall, in pursuance of any statutory provision in that behalf, have required the owner of the same to cause the same to be delivered to an officer of the Council for removal for the purpose of disinfection.

He shall comply with all proper instructions of the Medical Officer of Health as to cleansing and disinfection.

When the tent, van, shed or similar structure, and every such article as aforesaid shall have been thoroughly cleansed and disinfected

in accordance with those instructions, he shall give notice thereof to the Medical Officer of Health.

13. The occupier of a tent, van, shed or similar structure used for human habitation, in which any person has within six weeks previously been suffering from an infectious disease, shall not without having the tent, van, shed or similar structure, and all articles therein liable to retain infection, disinfected to the satisfaction of a registered medical practitioner as testified by a certificate signed by him, cause or suffer any person newly to occupy or become an inmate of the tent, van, shed, or similar structure.

GENERALLY FOR PREVENTING NUISANCES IN CONNECTION WITH TENTS,
VANS, SHEDS AND SIMILAR STRUCTURES USED FOR HUMAN HABITATION.

14. Notwithstanding any other provision of these byclaws, the occupier of a tent, van, shed or similar structure used for human habitation shall provide for the same a sufficient receptacle for refuse.

15. An occupier of a tent, van shed or similar structure used for human habitation shall not cause or suffer any solid or liquid filth to be retained therein.

He shall not deposit or cause any solid or liquid filth to be deposited within *thirty feet* from such tent, van, shed or structure, except in a proper receptacle.

He shall not deposit or cause any solid or liquid filth to be deposited in any place so as to cause a nuisance.

He shall cause every vessel, utensil or other receptacle provided or used for the purpose of containing or removing any solid or liquid filth to be sufficiently cleansed immediately after it shall have been used for that purpose.

16. The person by agreement with or by license from whom any tent, van, shed, or similar structure used for human habitation shall be erected, brought or used on any land, shall, in any case in which nuisance is likely to arise from the want of privy accommodation and of a receptacle for refuse for the use of the occupants of the tent, van, shed or structure, provide for their use on such land in a suitable situation sufficient privy accommodation, and a sufficient covered ashpit, dustbin, or other receptacle for refuse, and shall maintain the same in good repair and order and in a reasonably clean and wholesome condition.

17. The occupier of a tent, van, shed or similar structure used for human habitation shall not keep any animal, or deposit any filth or the dung of any animal, within the distance of *forty feet* from any well, spring, or stream, or other water used or likely to be used by man for drinking or domestic purposes, or for manufacturing drinks for the use of man, or any water used or likely to be used in any dairy, or otherwise in such a position or in such a manner as to render any such water liable to pollution.

PENALTIES.

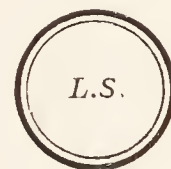
18. Every person who shall offend against any of the foregoing byelaws shall be liable for every such offence to a penalty of *five pounds*, and in the case of a continuing offence to a further penalty of *forty shillings* for each day after written notice of the offence from the Council.

Provided, nevertheless, that the justices or court before whom any complaint may be made, or any proceedings may be taken in respect of any such offence, may, if they think fit, adjudge the payment as a penalty of any sum less than the full amount of the penalty imposed by this byelaw.

Adopted under the Common Seal of the County Borough of Swansea, this Sixteenth day of December, 1908.

MORGAN TUTTON,

MAYOR.



JNO. THOMAS,

TOWN CLERK.



Allowed by the Local Government Board
this Second day of February, 1909.

S. B. PROVIS,

SECRETARY,

Acting on behalf of the said Board under
the authority of their General Order dated
the Twenty-sixth day of May, 1877.

TABLE VII. (Local Government Board).

Cases of Infectious Diseases notified during the year 1908.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE DISTRICT.						TOTAL CASES NOTIFIED IN EACH WARD.										No. OF CASES REMOVED TO HOSPITAL FROM EACH WARD.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	At Ages—Years.						At all Ages.	Alexandra.	Brynmelin.	Castle.	East.	Ffynone.	Landore.	Morriston.	St. Helen's.	St. John's.	Victoria.	Total Cases Re-moved to Hospital.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.		Alexandra.	Brynmelin.	Castle.	East.	Ffynone.	Landore.	Morriston.	St. Helen's.	St. John's.	Victoria.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Small-pox</

TABLE VIII. (Local Government Board).

SWANSEA DISTRICT.

Causes of, and Ages at, Death, during 1908.

CAUSES OF DEATH.	DEATHS IN OR BELONGING TO WHOLE DISTRICT AT SUBJOINED AGES.							DEATHS IN OR BELONGING TO WARDS (AT ALL AGES).										Total Deaths in Public Institutions in the District.
	All ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Alexandra.	Brynmelin.	Castle.	East.	Efynone.	Landore.	Morrison.	St. Helen's.	St. John's.	Victoria.	
Small-pox...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles ...	45	15	29	1	...	...	...	6	21	1	1	3	1	...	4	6	2	...
Scarlet Fever ...	7	...	4	2	...	1	...	1	...	2	...	1	...	...	1	2	...	...
Whooping Cough ...	23	13	10	...	...	...	...	2	...	...	...	1	1	11	1	4	3	...
Diphtheria and Membranous Croup	4	1	2	1	...	...	...	1	...	...	...	...	...	...	1	2	...	...
Croup ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fever { Typhus ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cerebro Spinal Fever	31	4	12	11	2	2	...	1	...	...	...	...	...	...	...	...	...	...
Epidemic Influenza ...	18	1	...	...	1	15	1	1	3	1	5	3	1	...	4	3	1	8
Cholera ...	...	...	...	...	...	...	...	...	...	...	...	2	2	3	...	5	...	...
Plague ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea ...	81	66	11	1	...	1	2	13	8	6	8	6	7	4	10	3	16	...
Enteritis ...	12	5	1	...	...	5	1	1	1	...	3	...	3	3	...	1	...	...
Puerperal Fever ...	3	...	...	...	...	2	...	1	...	...	...	...	1	...	...	...	...	...
Erysipelas ...	2	...	...	...	...	...	...	1	1	...	...	...	1	...	...	...	...	...
Other Septic Diseases ...	10	3	...	2	2	3	...	1	...	1	1	3	2	...	1	...	...	...
Phthisis ...	179	7	10	11	35	110	6	17	36	4	16	14	17	15	28	18	14	28
Other Tubercular Diseases	25	8	5	6	3	3	...	3	6	...	1	...	2	1	5	6	1	5
Cancer, Malignant Disease	70	...	...	...	...	49	21	5	10	2	9	9	5	8	8	6	8	12
Bronchitis...	130	30	5	...	1	44	50	25	20	5	17	8	16	7	8	12	12	3
Pneumonia ...	128	36	31	2	5	40	14	16	22	4	16	10	11	7	11	20	11	13
Fleurisy ...	2	...	...	...	...	2	...	...	...	...	1	1	...	...	...	...	...	...
Other Diseases of Respiratory Organs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcoholism ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cirrhosis of Liver { ...	7	...	...	...	...	7	...	2	...	...	2	1	...	...	...	...	...	...
Venereal Diseases ...	4	4	...	...	...	...	...	2	...	...	...	...	...	1	...	...	1	1
Premature Birth ...	49	49	...	...	...	...	...	10	3	2	3	7	2	2	9	8	3	2
Diseases and Accidents of Parturition	16	2	...	...	2	12	...	3	2	1	3	1	2	...	1	2	1	1
Heart Diseases ...	107	4	...	4	5	57	37	14	17	2	11	14	6	13	12	7	11	23
Accidents ...	86	7	15	14	13	29	8	6	10	6	23	7	5	3	7	10	9	37
Suicides ...	3	...	...	...	...	2	1	...	...	...	1	1	...	...	1	...	...	2
Rheumatic Fever ...	13	...	...	2	2	6	3	3	2	...	1	3	1	2	1	...	...	3
G. P. of Insane, Bridgend Asylum	25	...	...	...	3	14	8	2	9	...	3	3	3	...	1	...	...	...
Manslaughter ...	1	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
Cerebro Spinal Fever (Tubercular)	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tubercular Meningitis	34	5	16	10	3	...	4	4	3	5	5	3	3	...	1	...	...	...
Meningitis ...	26	8	10	4	2	...	3	3	...	7	...	1	4	3	3	2	5	4
All other causes ...	692	229	26	10	16	184	227	69	78	28	94	81	87	62	59	79	55	94
All causes ...	1835	497	188	81	96	594	397	211	271	67	234	184	180	149	176	202	161	250

TABLE IX.

Shewing deaths registered within the Borough of Swansea from all causes during the year 1908, including deaths of non-residents brought into the district on account of illness.

	AGES.											TOTALS.	From outside district.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards.		
I.—SPECIFIC, FEBRILE, OR ZYMOTIC DISEASES ...	117	80	24	12	10	8	6	8	5	1	...	271	12
II.—PARASITIC DISEASES ...	...	...	...	...	...	...	...	...	...	...	...	...	...
III.—DIETIC DISEASES ...	...	...	...	...	...	...	...	...	...	...	...	...	...
IV.—CONSTITUTIONAL DISEASES	24	31	31	45	45	54	48	42	27	6	1	354	10
V.—DEVELOPMENTAL DISEASES	53	...	...	...	...	...	...	8	54	61	28	204	3
VI.—LOCAL DISEASES ..	197	58	13	29	46	59	94	132	140	38	4	810	25
VII.—DEATHS FROM VIOLENCE...	8	15	15	13	18	10	17	7	8	3	...	114	23
VIII.—DISEASES OF OCCUPATION ..	...	...	...	...	...	...	1	...	...	...	...	1	...
XI.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES	102	3	1	2	2	7	7	5	3	...	...	132	3
TOTALS ...	501	187	84	101	121	138	173	202	237	109	33	1886	76
I.—SPECIFIC, FEBRILE, OR ZYMOTIC DISEASES.													
1.—MIASMATIC DISEASES.													
Small Pox { Vaccinated	...	...	...	...	...	...	...	...	...	...	...	...	...
Unvaccinated	...	...	...	...	...	...	...	...	...	...	...	...	...
German Measles ...	1	...	...	...	...	...	...	...	...	...	...	1	...
Measles ...	14	29	1	...	...	...	...	...	...	...	...	44	...
Scarlet Fever ...	...	4	2	...	1	...	...	...	...	...	...	7	...
Influenza ...	1	...	...	1	2	4	3	6	1	...	...	18	...
Whooping Cough ...	14	10	...	...	...	...	...	...	...	...	...	24	...
Diphtheria and Membranous Croup	1	2	1	...	...	...	...	...	...	...	...	4	...
Enteric or Typhoid Fever ...	...	...	...	1	1	...	...	...	...	...	...	2	1
Cerebro Spinal Meningitis (Tub.)	...	1	...	...	...	...	...	...	...	...	...	1	...
Cerebro Spinal Meningitis	4	12	12	2	1	1	...	...	...	...	...	32	...
Meningitis ...	9	10	4	2	1	1	...	...	...	...	...	27	1
2.—DIARRHOEAL DISEASES.													
Simple Cholera ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea (Zymotic Enteritis)	66	11	1	...	...	1	...	...	1	1	...	81	...
3.—MALARIAL DISEASES.													
Remittent Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ague ...	...	...	...	...	...	...	...	...	...	...	...	...	...
4.—ZOOGENOUS DISEASES.													
Cow-pox and Effects of Vaccination	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases (e.g., Hydrophobia Glanders, Splenic Fever)	...	...	...	...	...	...	...	...	...	...	...	...	...
Anthrax ...	...	...	...	...	...	...	...	...	1	...	...	1	1
5.—VENEREAL DISEASES.													
Syphilis ...	4	...	...	...	...	...	...	...	...	...	...	4	...
Gonorrhœa, Stricture of Urethra...	...	...	...	...	...	...	...	...	...	...	...	...	...
6.—SEPTIC DISEASES.													
Erysipelas ...	...	...	...	...	...	...	2	...	...	...	...	2	...
Pyæmia, Septicæma ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever ...	...	...	...	1	1	1	...	...	...	...	...	3	...
Other Septic Diseases	3	1	3	5	3	...	1	2	2	...	...	20	9

TABLE IX.—Continued.

	AGES.											TOTALS	From outside District.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upw's.		
II.—PARASITIC DISEASES.													
Thrush and other Vegetable Parasitic Diseases
Other Animal Parasitic Diseases
III.—DIETIC DISEASES.													
Want of Breast Milk, Starvation
Chronic Alcoholism
Delirium Tremens
IV.—CONSTITUTIONAL DISEASES.													
Rheumatic Fever	2	1	4	1	1	...	2	...	...	11	...
Rheumatism	1	...	...	1	...	...	1	...	3	...
Gout	2	...	...	2	...
Rickets
Cancer, Malignant Disease	3	13	20	22	17	3	1	79	9
Tabes Mesenterica	3	...	...	...	...	...	...	...	...
Tubercular Meningitis	...	5	16	9	3	...	...	...	...	...	...	33	...
Phthisis	...	7	10	11	35	36	36	25	14	5	1	180	1
Other forms of Tuberculosis	...	8	5	6	3	1	2	...	...	...	...	25	...
Hæmorrhagic Diathesis	...	3	...	...	...	...	...	...	...	...	...	3	...
Anæmia, Chlorosis, Leucocythæmia	2	...	1	1	...	1	...	...	...	5	...
Diabetes Mellitus	2	...	1	...	4	1	1	...	9	...
Other Constitutional Diseases...	1	1	...	...	...	2	...
Hydrocephalus	...	1	...	1	...	...	...	...	...	...	...	2	...
V.—DEVELOPMENTAL DISEASES.													
Premature Birth	...	50	...	...	...	...	...	...	...	...	...	50	...
Icterus Neonatorum	...	2	...	...	...	...	...	...	...	...	...	2	...
Congenital Malformations	...	1	...	...	...	...	...	...	...	...	...	1	...
Old Age	8	54	61	28	151	3
VI.—LOCAL DISEASES.													
1.—DISEASES OF NERVOUS SYSTEM.													
Apoplexy, Softening of Brain, Hemiplegia Brain Paralysis	...	1	...	...	2	2	6	19	35	37	13	115	1
Insanity, General Paralysis of the Insane
Epilepsy	2	...	2	1	...	3	...	...	...	8	...
Convulsions...	...	103	17	1	...	...	...	...	...	...	...	121	...
Laryngismus Stridulus
Disease of Spinal Cord, Paraplegia
Cerebral Tumour	1	3	...	...	...	...	4	...
Locomotor Ataxy	2	2	...	...	...	4	...
Other Diseases of Nervous System	...	2	...	...	1	1	2	1	...	2	...	9	...
2.—DISEASES OF ORGANS OF SPECIAL SENSE, <i>e.g.</i> , of Eye, Ear, Nose.													
3.—DISEASES OF CIRCULATORY SYSTEM.													
Pericarditis	1	...	...	...	...	...	...	1	...
Endocarditis
Valvular Diseases of Heart	...	3	...	4	3	3	7	13	16	11	...	1	61 2

		AGES.											TOTALS.	From out- side Dist.
		0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards		
Other Diseases of Heart—Syncope		1	...	...	2	2	1	4	16	20	5	1	52	2
Aneurism		...	...	...	...	...	...	...	...	...	...	...	...	...
Angina Pectoris		...	...	...	...	...	...	...	...	1	...	...	1	...
Embolism, Thrombosis		...	...	...	...	...	...	...	...	...	...	...	...	...
Hypertrophy of Heart		...	...	...	...	...	...	...	...	...	...	...	...	...
Varicose Veins		...	...	...	...	...	...	...	...	...	...	...	...	...
Other Circulatory Diseases...		...	...	...	...	...	...	...	...	...	...	...	...	...
4.—DISEASES OF RESPIRATORY SYSTEM.														
Laryngitis		...	...	...	...	...	...	...	...	...	...	...	...	...
Croup (not membranous)		...	...	...	...	...	...	...	...	...	...	...	...	...
Emphysema, Asthma		...	...	...	...	1	...	1	3	1	...	...	6	...
Bronchitis		30	4	...	1	6	4	8	26	39	9	2	129	...
Pneumonia		36	32	2	4	9	9	13	11	10	5	...	131	3
Pleurisy		...	...	...	...	1	1	...	...	...	...	...	2	...
Pulmonary Embolism		...	...	...	...	...	...	1	2	...	...	...	3	...
Other Diseases of Respiratory System		1	...	...	1	...	...	...	...	...	...	...	2	...
5.—DISEASES OF DIGESTIVE SYSTEM.														
Dentition		...	...	...	...	...	...	...	...	...	...	...	...	...
Stomatitis		...	...	...	...	...	...	...	...	...	...	...	...	...
Tonsillitis		...	...	1	...	...	...	...	...	...	...	...	1	...
Dyspepsia		...	...	...	...	...	...	...	...	...	...	...	...	...
Diseases of Stomach Hæmatemesis		...	...	...	...	...	...	1	...	...	...	...	1	...
Enteritis		4	1	...	...	1	...	...	3	1	...	...	10	...
Gastro Enteritis and Gastritis		5	2	...	...	2	1	1	1	2	...	...	14	...
Obstructive Diseases of Intestine		2	...	2	1	...	3	2	1	3	1	...	15	5
Ulcerative Diseases of Intestine		...	...	...	...	...	...	...	...	...	...	...	...	...
Intussusception of Bowels		3	...	...	...	...	1	...	...	...	...	...	4	...
Hernia		...	...	...	1	...	1	1	3	2	...	...	8	3
Peritonitis, Appendicitis		...	...	...	3	2	3	...	1	...	...	...	9	3
Cirrhosis of Liver (see Intemperance)		...	...	...	...	...	1	6	1	...	...	...	8	1
Gallstones		...	...	...	...	...	...	...	...	...	...	...	...	...
Jaundice and other Diseases of Liver		...	...	...	...	...	...	...	...	...	...	...	...	...
Perforated Gastric Ulcer		...	...	...	2	1	5	3	2	...	...	...	13	3
Other Diseases of Digestive System		2	...	...	...	...	3	...	...	...	...	...	5	...
6.—DISEASES OF LYMPHATIC SYSTEM, <i>e.g.</i> of Lymphatics and of Spleen of Supraran, Capsules														
		...	...	1	...	1	...	...	...	...	...	...	2	...
7.—DISEASES OF GLAND-LIKE ORGANS OF UNCERTAIN USE.														
<i>e.g.</i> , Bronchocele		...	...	...	...	1	...	...	...	...	...	...	1	...
Dis. of Pancreas...		...	...	...	...	...	...	...	...	...	...	...	...	...
8.—DISEASES OF URINARY SYSTEM.														
Nephritis		...	...	...	...	...	...	...	...	...	...	...	...	...
Bright's Disease, Albuminuria		...	...	1	3	3	6	11	7	10	2	...	43	1
Disease of Bladder or of Prostate		...	...	...	...	...	...	...	...	...	...	...	...	...
Uræmia		...	...	...	...	...	...	1	...	...	...	...	1	...
Enlarged Prostate		...	...	...	...	...	...	...	1	1	3	...	5	...
Other Diseases of Urinary System		...	...	...	...	...	...	...	1	...	...	...	1	...
9.—DISEASES OF REPRODUCTIVE SYSTEM														
A. <i>Of Organs of Generation.</i>														
Male Organs		...	...	...	...	...	...	...	...	...	...	...	...	...
Female Organs		...	...	...	1	...	...	...	...	...	...	...	1	...
B. <i>Of Parturition.</i>														
Abortion, Miscarriage		...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Convulsions		...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE IX.—Continued.

	AGES.											Totals.	From outside District.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upw's.		
Placenta Prævia, Flooding ...													
Phlegmasia Dolens ...													
Purperal Mania ...													
Other Accidents of Childbirth ...	2			2	8	4						16	
10.—DISEASES OF BONES AND JOINTS.													
Caries, Necrosis ...													
Anthrithis Ostitis, Periostitis ...			1									1	
Other Diseases of Bones and Joints ...													
11.—DISEASES OF INTEGUMENTARY SYSTEM.													
Carbuncle ...													
Ulcers, Bedsore ...													
Eczema ...													
Cellulitis ...	1											1	
Other Diseases of Integumentary System ...	1											1	
VII.—DEATHS FROM VIOLENCE.													
1.—ACCIDENT OR NEGLIGENCE.													
Exhaustion after Operation ...	1				1	2	3	1	1			9	7
Burn, Scald ...	1	11	7	1			1		1	1		23	
Drowning ...		2	3	2	2		2					11	
Suffocation (Overlaying) ...	5											5	
Other Accidents ...	1	2	5	10	15	8	8	6	6	1		62	16
2.—HOMICIDE.													
Manslaughter ...							1					1	
Murder ...													
Misadventure ...													
3.—SUICIDE.													
							2			1		3	
4 —EXECUTION.													
Hanging ...													
VIII.—DISEASES OF OCCUPATION													
Lead Poisoning ...							1					1	
IX.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.													
Debility, Atrophy, Inanition...	101	3										104	
Dropsy Ascites ..													
Tumour ...													
Abscess ...													
Hæmorrhage ...													
Causes not Specified or Ill-defined ...	1		1	2	2	7	7	5	3			28	3

SUMMARY OF TABLE IX.

1908.					No. of DEATHS.		
					Males.	Females	Total.
I. SPECIFIC FEBRILE OR ZYMOTIC DISEASES.							
1.	Miasmatic Diseases	...	...	...	92	68	160
2.	Diarrhoeal	...	...	...	57	24	81
3.	Malarial ...	...	...	...	...	...	...
4.	Zoogenous	...	...	...	1	...	1
5.	Venereal	...	...	...	2	2	4
6.	Septic ...	...	...	...	15	10	25
II. PARASITIC DISEASES ...					...	...	...
III. DIETIC DISEASES ...					...	...	...
IV. CONSTITUTIONAL DISEASES ...					201	153	354
V. DEVELOPMENTAL DISEASES ...					74	130	204
VI. LOCAL DISEASES :—							
1.	Diseases of the Nervous System	...	...	...	148	113	261
2.	Diseases of the Organs of Special Sense	...	...	...	...	...	...
3.	Diseases of Circulatory System	...	...	...	55	60	115
4.	Diseases of Respiratory System	...	...	...	162	111	273
5.	Diseases of Digestive System...	...	...	...	52	36	88
6.	Diseases of Lymphatic System	...	...	...	1	1	2
7.	Diseases of Gland-like Organs of Un- certain Use	...	...	...	...	1	1
8.	Diseases of Urinary System	...	...	...	32	18	50
9.	Diseases of Reproductive System	...	...	...	...	...	...
	(a) Diseases of Organs of Generation...	...	...	...	...	1	1
	(b) Diseases of Parturition	...	...	...	2	14	16
10.	Diseases of Bones and Joints	...	...	...	...	1	1
11.	Diseases of Integumentary System	...	...	...	1	1	2
VII. VIOLENCE :—							
1.	Accident or Negligence	...	...	...	81	29	110
2.	Homicide	...	...	...	1	...	1
3.	Suicide ...	...	...	...	3	...	3
4.	Execution	...	...	...	...	...	...
VIII. DISEASES OF OCCUPATION ...					1	...	1
IX. ILL-DEFINED AND NOT SPECIFIED CAUSES ...					67	65	132
Total ...					1048	838	1886

TABLE X.

Showing the number of Deaths from the principal Zymotic Diseases in the ten years—1898 to 1907.
and in the year 1908.

DISEASE.	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	Annual Average of 10 years 1898-1907.	Proportion of deaths to 1000 deaths 1898-07.	Total deaths in 1908.	Proportion of deaths to 1000 deaths in 1908.
Small-pox ..	..	..	..	..	33	..	..	..	..	..	3.3	1.90	..	..
Measles ..	89	15	66	7	8	95	..	48	29	14	37.1	21.21	45	24.5
Scarlet Fever ..	10	11	7	9	18	12	14	10	9	5	10.5	6.00	7	3.8
Diphtheria ..	122	140	61	14	24	21	24	18	7	12	44.3	25.33	4	2.2
Whooping Cough ..	40	28	16	85	1	33	97	6	51	40	39.7	22.70	23	12.5
Typhus ..	1	..	..	..	..	..	..	..	..	..	0.1	0.05	..	..
Enteric ..	12	9	14	15	6	9	4	5	10	4	8.8	5.03	1	0.5
Other or doubtful ..	..	..	..	1	..	..	1	..	..	..	0.2	0.11	..	..
Diarrhœa ..	53	77	66	51	47	50	74	47	81	50	59.6	34.07	81	44.1
Total ..	327	280	230	182	137	220	214	134	187	125	203.6	116.40	161	87.7
Totals—London ..	12,561	11,226	10,136	10,203	10,393	8,166	9,990	7,990	9,179	6,720	9,656	123.2	6,599	97.9
Do. England & Wales	69,714	69,820	64,058	66,531	53,796	49,150	65,633	51,580	60,062	43,953	59,429	109.5	46,306	88.8

Localities of Deaths from Zymotic Diseases.

DISTRICT.	LOCALITY.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria	Whooping Cough.	Enteric Fever.	Diarrhoea.	TOTALS.
Alexandra Ward. — Estimated Population. 10,860.	Crabbe's court .. ..	..	1	..	..	..	..	..	1
	College street .. ..	..	..	..	..	..	..	1	1
	East place .. ..	..	1	..	..	..	..	..	1
	Graig terrace .. ..	..	2	..	..	..	..	..	2
	Greyhound street .. ..	..	..	..	..	..	..	1	1
	Jockey street .. ..	..	..	..	..	..	..	1	1
	Jones' terrace .. ..	..	..	..	..	..	..	1	1
	John street .. ..	..	..	..	..	..	..	1	1
	Milton terrace .. ..	..	..	..	..	..	..	1	1
	Matthew street .. ..	..	1	..	..	..	..	..	1
	North Hill road .. ..	..	..	..	..	..	..	2	2
	Orchard street .. ..	..	1	..	..	..	..	2	3
	Prince of Wales road ..	..	..	..	..	..	..	1	1
	Powell street .. ..	..	..	..	..	..	..	1	1
	Watkin street .. ..	..	..	..	..	..	..	1	1
		..	6	..	..	..	..	13	19
Brynmelin Ward. — Estimated Population, 10,730.	Anne street .. ..	..	1	..	..	..	..	..	1
	Brynmelin street .. ..	..	1	..	..	..	..	1	2
	Baptist Well street ..	..	..	1	..	..	..	..	1
	Bridge street .. ..	..	..	..	..	..	..	1	1
	Caepistyll street .. ..	..	1	..	..	..	..	..	1
	Carmarthen road .. ..	..	4	..	..	..	..	1	5
	Colbourne terrace ..	..	1	..	..	..	..	..	1
	Convent street .. ..	..	1	..	..	..	..	..	1
	Greenhill street .. ..	..	2	..	..	..	..	..	2
	Green Row .. ..	..	1	..	..	..	..	..	1
	Grove street .. ..	..	1	..	..	..	..	..	1
	Harries street .. ..	..	..	..	..	..	..	1	1
	Llangyfelach street ..	..	1	..	..	..	..	3	4
	Marsden street .. ..	..	1	..	..	..	..	..	1
	Prince of Wales road ..	..	2	..	..	..	..	..	2
	Percy street .. ..	..	1	..	..	..	..	..	1
	Peter street .. ..	..	1	..	..	..	..	..	1
	Skinner street .. ..	..	..	..	..	..	..	1	1
	Symon street .. ..	..	..	..	..	1	..	..	1
	Scyborfach street ..	..	..	..	1	..	..	..	1
	Union Workhouse ..	..	1	..	..	..	1	..	2
	Waunwen road .. ..	..	1	..	..	..	..	..	1
	Well street .. ..	..	..	..	..	1	..	..	1
		..	21	1	1	2	1	8	34

DISTRICT.	LOCALITY.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria	Whooping Cough.	Enteric Fever.	Diarrhoea.	TOTALS.
Castle Ward. — — Estimated Population, 3,720.	Gower place ..	..	..	..	..	..	..	1	1
	Kynaston place ..	..	..	..	..	..	..	3	3
	Mount street ..	..	..	..	..	..	..	1	1
	Waterloo street ..	..	..	..	..	..	..	1	1
	York street ..	..	1	..	..	..	..	..	1
		..	1	..	..	..	..	6	7
East Ward. — — — Estimated Population, 13,430.	Danygraig terrace ..	..	..	1	..	..	..	1	2
	Danygraig road ..	..	..	..	..	..	..	1	1
	Foxhole road ..	..	..	..	..	..	..	1	1
	Hoo street ..	..	..	..	..	..	..	1	1
	Lambert's cottages ..	..	..	..	..	..	..	1	1
	Margaret street ..	..	..	..	..	..	..	1	1
	Middleton street ..	..	..	1	..	..	..	..	1
	Port Tennant road ..	..	..	..	..	..	..	1	1
	Upton terrace ..	..	1	..	..	..	..	..	1
	Wern terrace ..	..	..	..	..	..	..	1	1
		..	1	2	..	..	..	8	11
Ffynnone Ward. — — — Estimated Population, 13,730.	Fairfield terrace ..	..	1	..	..	..	..	..	1
	Griffiths terrace ..	..	..	..	..	..	..	1	1
	Humphrey street ..	..	..	..	..	..	..	1	1
	Mansel street ..	..	..	1	..	..	..	..	1
	Norfolk street ..	..	1	..	..	1	..	..	2
	Nicholl street ..	..	..	..	..	..	..	1	1
	Penmaen terrace ..	..	..	..	..	..	..	1	1
	Stanley terrace ..	..	1	..	..	..	..	..	1
	Westbury street ..	..	..	..	..	..	..	2	2
		..	3	1	..	1	..	6	11
Landore Ward. — — — Estimated Population, 12,460.	Eaton road ..	..	..	..	..	..	..	1	1
	Heolgerrig ..	..	..	..	..	1	..	..	1
	Millbrook street ..	..	..	..	..	..	..	2	2
	Neath road ..	..	..	..	..	..	..	2	2
	Plough road ..	..	..	..	..	..	..	1	1
	Siloh road ..	..	1	..	..	..	..	..	1
	Trewyddfa road ..	..	..	..	..	..	..	1	1
		..	1	..	..	1	..	7	9

DISTRICT.	LOCALITY.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria	Whooping Cough.	Enteric Fever.	Diarrhoea.	TOTALS.
Morriston Ward — — Estimated Population, 10,310.	Duffryn terrace ..	..	..	..	..	1	..	..	1
	Duke street ..	..	..	..	..	1	..	..	1
	John street ..	..	..	..	..	1	..	1	2
	Graig ..	..	..	..	..	..	..	1	1
	Neath road ..	..	..	..	..	2	..	1	3
	Pleasant terrace ..	..	..	..	..	1	..	..	1
	Plasycloed ..	..	..	..	..	1	..	..	1
	Pentremalwed ..	..	..	..	..	1	..	..	1
	Tyrpenry street ..	..	..	..	..	1	..	..	1
	Temple terrace ..	..	..	..	..	1	..	..	1
	Vicarage road ..	..	..	..	..	1	..	..	1
	Wychtree street ..	..	..	..	..	..	..	1	1
		..	..	..	..	11	..	4	15
St. Helen's Ward. — — Estimated Population, 13,170.	Bay View terrace ..	..	..	..	..	1	..	..	1
	Eaton Crescent ..	..	..	..	..	..	..	1	1
	Fleet street ..	..	..	..	1	..	..	1	2
	Gwydr crescent ..	..	..	1	..	..	..	..	1
	King Edward's road ..	..	..	..	..	..	..	1	1
	Marlborough road ..	..	..	..	..	..	..	1	1
	Oxford street ..	..	1	..	..	..	..	1	2
	Park place ..	..	..	..	..	..	..	1	1
	Rhyddings Park road ..	..	..	..	..	..	..	1	1
	Rodney street ..	..	2	..	..	..	..	2	4
	Vincent street ..	..	1	..	..	..	..	1	2
		..	4	1	1	1	..	10	17
St. John's Ward. — — Estimated Population, 12,390.	Aberdyberthi street ..	..	..	..	..	1	..	..	1
	Earl street ..	..	1	..	..	..	..	..	1
	Gerald street ..	..	1	..	1	..	..	..	2
	Middle road ..	..	..	..	..	..	..	1	1
	Manselton road ..	..	1	2	1	..	..	..	4
	Neath road ..	..	1	..	..	1	..	..	2
	Pentre Estyll ..	..	..	..	..	1	..	..	1
	Richard street ..	..	1	..	..	..	..	..	1
	Robert street ..	..	..	..	..	1	..	..	1
	Stepney street ..	..	..	..	..	..	..	1	1
	Vivian street ..	..	1	..	..	..	..	..	1
	Vernon street ..	..	..	..	..	..	..	1	1
		..	6	2	2	4	..	3	17

DISTRICT.	LOCALITY.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria	Whooping Cough.	Enteric Fever.	Diarrhoea.	TOTALS.
Victoria Ward Estimated Population, 6,820.	Argyle street	..	..	..	..	..	..	1	1
	Bathurst street	..	..	..	..	..	..	2	2
	Clarence terrace	..	..	..	..	..	..	1	1
	Glamorgan terrace	..	..	..	..	..	..	1	1
	Hoskins place	..	..	..	..	2	..	..	2
	James street	..	..	..	..	1	..	1	2
	Mysydd street	..	..	..	..	..	..	1	1
	Madoc street	..	..	..	..	..	..	2	2
	Oxford street	..	..	..	..	..	..	1	1
	Park street	..	..	..	..	..	..	1	1
	Richardson street	..	..	..	..	..	..	1	1
	Western street	..	..	..	..	..	..	3	3
	Wellington street	..	2	..	..	..	..	1	3
		..	2	..	..	3	..	16	21

SUMMARY.

WARD.		Small Pox.	Measles.	Scarlet Fever.	Diphtheria	Whooping Cough.	Enteric Fever.	Diarrhoea.	TOTALS.
Alexandra	6	..	..	..	..	13	19
Brynmelin	21	1	1	2	1	8	34
Castle	1	..	..	..	..	6	7
East	1	2	..	..	..	8	11
Ffynone	3	1	..	1	..	6	11
Landore	1	..	..	1	..	7	9
Morrison	11	..	4	15
St. Helen's	4	1	1	1	..	10	17
St. John's	6	2	2	4	..	3	17
Victoria	2	..	..	3	..	16	21
Totals		..	45	7	4	23	1	81	161

AN ACCOUNT
OF AN
Outbreak of Spotted Fever

(EPIDEMIC CEREBRO-SPINAL MENINGITIS),

Which occurred in Swansea during 1908.

63 CASES.

With Special Notes on :

- (1) The path of infection ;
- (2) Post-mortem Examinations ;
- (3) The value of Widal (Typhoid) reaction ;
- (4) The value of serum treatment ;
- (5) The value of repeated lumbar puncture ;
- (6) The isolation of the organism from the urine during
life and after death.

BY

DAVID J. MORGAN,

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Shortly after my appointment in March, 1908, as Medical Officer of Health of Swansea, I noticed that the deaths from meningitis (of all kinds), during the first quarter of the year, exceeded by more than 100 per cent., those usually attributed to this disease; and as many of the cases had been of a very virulent character, I considered it advisable to make enquiries into the exact nature of the disease. Wherever possible, the spinal fluid was removed by lumbar puncture, and a microscopic and bacteriological examination made of the contents.

During April and May, Dr. Farman reported 4 cases of this disease, which occurred in one house—63, Colbourne Terrace. On April 20th, a boy, aged 4 (Case 2), was taken ill with the disease; six days later a brother, aged 14 months (Case 4), and a sister, aged $5\frac{1}{2}$ years (Case 3), were seized with the same complaint; and on May 6th a cousin, a girl aged 5 (Case 1), was seized with a very virulent form of the disease and died in 36 hours. Of these 4 cases, two died (Nos. 1 and 4) and two recovered. Unfortunately in these cases the parents would not allow us to perform lumbar puncture. In two instances two cases occurred in one house. On April 12th, a boy, aged 5 years (Case 12), was suddenly taken ill with the disease, and died in 18 days. Three days after the death of the child, the father, aged 33 (Case 23), was suddenly taken ill with the same complaint, and died after an illness of 20 days. Early in June, Dr. John Davies reported the cases of a brother and sister (Cases 40 and 41), aged respectively $11\frac{1}{2}$ and 17 years, who were attacked within 5 days of each other. These were two of the most typical cases of the disease; and both recovered.

The disease was never epidemic. Most of the cases were of a sporadic nature, and in 44 out of the 63 cases, no evidence of contact or relationship by means of intermediaries could possibly be discovered. Usually the poorest classes were attacked, but in some cases the disease spread to the better artisan classes.

As a result of investigation into the outbreak, I am bound to come to the conclusion that the disease is not new to Swansea, but, like scarlet fever and measles, is always with us, and may, under certain conditions which are not yet understood, become epidemic in character. Undoubtedly many of the cases have in the past been certified as acute meningitis, acute tubercular meningitis, typhoid fever, influenza, pneumonia, etc.

The clinical features of the 63 cases, as far as it was possible to obtain these, are here recorded.

CASE 1.

C.M.P., aged 5, female.—Taken ill suddenly about midnight, May 6th, with vomiting, severe headache, high fever, convulsions, delirium, shivering, retraction of the head, and arching of the body. Kernig's sign present, but no rash. She rapidly became unconscious and died in 36 hours. Was well nourished, and had always been very healthy. Removed from Exeter to Swansea three weeks before death, and at Swansea resided at a house where three cousins (Cases 2, 3 and 4) contracted cerebrospinal meningitis.

No lumbar puncture done.

CASE 2.

E.W., aged 4, male.—The patient, who was previously quite healthy, was taken ill suddenly in the evening of April 20th, with headache, high fever, great thirst, delirium, and marked hyperaesthesia all over the body. There was no vomiting, no rash or herpes, and no retraction of the head. Kernig's sign was present. After three days there was some improvement, and this continued until recovery was complete in about four weeks. A squint developed on the second day. The patient retained full control of the bladder and rectum throughout. Four days after the onset of the disease a brother and sister contracted the disease (Cases 3 and 4), as also did a cousin 15 days later (Case 1).

No lumbar puncture done.

CASE 3.

El. W., aged $5\frac{1}{2}$, female.—A healthy child, was taken ill suddenly on April 26th with severe frontal headache, drowsiness and vomiting, fever, high delirium, extreme tenderness of the whole body, and retraction of the head. The delirium (accompanied by great shrieking) was very marked for the first 24 hours. Herpes appeared at the angles of the mouth on the second day, and continued for 12 days. There was marked diarrhoea. Kernig's sign was present, and there was no squint. The child recovered after about 3 weeks, but had not full control of its legs, though this returned later. A brother contracted the disease on the same day (see Case 4), another brother 4 days previously (Case 2), and a cousin 11 days later (Case 1).

No lumbar puncture done.

CASE 4.

L.W., aged 14 months, male.—A child previously healthy, was taken ill suddenly on April 26th (see Case 3), with vomiting, fever, delirium, retraction of the head. A squint appeared on the first day, and herpes of the lips on the second day. For the first three or four days there was marked hyperaesthesia of the whole body. Kernig's sign was present, and the child kept putting the hand to the head as if in pain. A few petechial spots were found on the front of the chest and shoulders. The child became gradually

weaker and died on May 31st after an illness of 35 days. Three other cases occurred in the same house (see Cases 1, 2 and 3).

No lumbar puncture done.

CASE 5.

B.T., aged 12, male.—A child previously healthy, was taken ill suddenly on April 24th with vomiting, headache (occipital), fever, delirium, convulsions, retraction of the head. Kernig's sign was present; there were a few purpuric spots over the front of the chest and abdomen. A squint developed on the third day. The body was arched. There was hyperaesthesia of the body and loss of control of the bladder and rectum. The patient became quite blind, and died after 22 days.

No lumbar puncture done.

CASE 6.

A.E.H., aged 3, male.—A child previously healthy, was taken ill suddenly on April 3rd with headache, vomiting, high fever, delirium, convulsions, retraction of the head, and arching of the back. There was a well marked petechial rash on front of the chest and shoulders. Kernig's sign was present. The child was unconscious and died in 24 hours. This child was a cousin of C.G.D. (Case 8), and was taken to the house of the latter 6 days before it (A.E.H.) developed the disease, but did not see the child C.G.D., although the father saw it. It was also a cousin of W.R.H. (Case 7), but was not taken in contact with the case, though the parents had visited the house.

No lumbar puncture done.

CASE 7.

W.R., aged 1 year, male.—A child previously healthy, was taken ill suddenly on April 8th with headache, vomiting, delirium, fever, convulsions, retraction of the head, and arching of the body. It was unconscious and died in 11 hours. There was no rash. Kernig's sign was present. The child was a cousin of A.E.H. (Case 6) and C.G.D. (Case 8), whose parents used to visit.

No lumbar puncture done.

CASE 8.

C.G.D., aged $2\frac{1}{3}$ years, male.—A child previously very healthy, was on February 29th taken ill suddenly with vomiting, headache (posterior), fever, delirium, retraction of the head, convulsions. Later it became drowsy, developed a squint, and died after 42 days' illness. There was no rash. The body was arched. Kernig's sign was present. There was hyperaesthesia of the body. The child became quite blind 14 days before death. A cousin to A.E.H. (Case 6) and W.R.H. (Case 7).

No lumbar puncture done.

CASE 9.

D.L., aged 3 years, female.—A child previously healthy, was taken ill suddenly on April 12th with vomiting, headache, fever, delirium, convulsions, retraction of the head, hyperaesthesia of the body. It became drowsy and died in 5 days. There was no rash. Kernig's sign was present.

No lumbar puncture done.

CASE 10.

G.T., aged 8 months, male.—A child not previously healthy, was taken suddenly ill on April 18th with vomiting, convulsions, pain in the head, fever, retraction of the head, and squint. It became drowsy and died in 2 days. There was no rash. Kernig's sign was not noticed. It was being nursed at the breast.

No lumbar puncture done.

CASE 11.

J.C.M., aged 20, male.—A strong, healthy man, was suddenly taken ill on April 20th with severe frontal headache, delirium, fever, convulsions, squint, and retraction of the head. He became unconscious and died in 3 days. There was no rash, vomiting or hyperaesthesia. Kernig's sign was present.

No lumbar puncture done.

CASE 12.

W.D.D., aged 5 years, male.—A healthy child, was suddenly taken ill on April 12th with vomiting, convulsions, headache (back), delirium, fever, retraction of head. It became drowsy, developed a squint, and died in 18 days. There was no rash. It became blind a few days before death. Kernig's sign was present. Three days after the death of the child, the father (Case 23) was taken ill with same symptoms, and died in 20 days.

Lumbar puncture not done.

CASE 13.

M.E.W., aged 2, female.—A child previously healthy, was on April 23rd suddenly seized with pain in the head, vomiting, convulsions, and fever. It became delirious, and later, comatose. Kernig's sign was present. No rash was noticed. It died in 2 days. The child had been in contact with Case 19.

No lumbar puncture done.

CASE 14.

A.J.E., aged 3 months, male.—A healthy child, was suddenly taken ill on April 24th with vomiting, convulsions, fever, retraction of the head, and hyperaesthesia of the body. A petechial rash appeared at back of neck. It soon became unconscious and died in 5 days. Kernig's sign was not noticed.

No lumbar puncture done.

CASE 15.

W.H.P.J., aged 6, male.—An unhealthy child, was suddenly taken ill on April 21st with vomiting, convulsions, delirium, fever, retraction of the head, headache (front and top of head). No rash was noticed. The body was arched. It became drowsy and died in 11 days. Kernig's sign was present. Two days before death the body became extremely stiff and rigid, and there was a slight purulent discharge from left ear.

No lumbar puncture done.

CASE 16.

F.W., aged 36, male.—A strong, well nourished, healthy man, was suddenly taken ill on April 25th with headache, high fever, and delirium. He rapidly became unconscious, the neck was stiff, the body arched, and Kernig's sign was well marked. A squint was also observed. He never regained consciousness, and died in 4 days. No rash was seen. A postmortem examination was performed. The brain and cord were found covered with thick pus, in which a diplococcus was found which did not retain Gram's stain. No cultures were made.

CASE 17.

P.G.D., aged 4 years, male.—A healthy child, was suddenly taken ill on May 3rd with headache, delirium, fever and retraction of the head. It had a large number of fits (22), and developed a squint. It died in 3 days. Two days before death it became completely paralysed on the left side, and became quite blind. There was no rash. Kernig's sign was present.

Lumbar puncture not done.

CASE 18.

T.D.T., aged 30, male.—A strong, healthy man, was suddenly taken ill on April 4th with headache, vomiting, delirium, convulsions, fever, retraction of the head, hyperaesthesia of the body. He developed a squint, remained in a drowsy condition for 29 days, and died. Kernig's sign was present. No rash was noticed.

No lumbar puncture done.

CASE 19.

D.F.D., aged 1 year 9 months, male.—A child not previously healthy, was suddenly taken ill on April 24th with vomiting, convulsions, headache, high fever, retraction of the head, hyperaesthesia, arching of the body. Kernig's sign was present, but no rash was observed. A squint developed on the second day. It became totally blind 12 days before death, which took place after an illness of 59 days. This child had been in contact with Case 13.

Lumbar puncture was performed 24 hours after death, and the meningococcus isolated in pure culture. The spinal fluid had a milky appearance.

CASE 20.

E.E., aged 13, female.—A girl previously quite healthy, was suddenly taken ill on April 25th with vomiting, pains in the head and neck, high fever, delirium, hyperaesthesia, pain in the belly, retraction of the head. Kernig's sign was present. A squint developed on the second day, and on the third day herpes developed at the angles of the mouth. She lost her sight for the first two days, but recovered this later. There was loss of control of the bladder and rectum for a few days. She remained in a drowsy condition for 37 days, became extremely emaciated, and then died. No rash was observed.

Lumbar puncture was performed. Thick yellow pus was obtained, from which the meningococcus was isolated in pure culture.

CASE 21.

C.G.M., aged 3 years 4 months, male.—A child previously healthy, was suddenly taken ill on April 27th with vomiting, pains in the head, fever, delirium, shivers, hyperaesthesia of the whole body, retraction of the head, and arching of the back. (In this case there was a history of a fall on to the head 2 days before the onset of symptoms). Kernig's sign was present. No rash was observed. A squint developed about the second day. He remained in a drowsy state, with loss of control of bladder and rectum, became more and more emaciated and died in 35 days.

Lumbar puncture not done.

CASE 22.

A.G.T., aged 1 year 2 months, male.—A child not previously healthy, was suddenly taken ill on April 13th with vomiting, pains in the head (front and back), convulsions, fever, delirium, retraction of the head, arching of the back, and extreme hyperaesthesia of the body. Kernig's sign was present. There was no rash. The child remained in a drowsy condition for weeks, and became extremely wasted. It was found to be totally blind on June 1st. It had previously developed a squint. The case was removed to the Borough Fever Hospital on June 15th. The child later (about six months) recovered its sight and became quite well.

Lumbar puncture was performed. The spinal fluid was fairly turbid, and gave a pure culture of the meningococcus.

CASE 23.

J.D., aged 33, male.—This man (a father of Case 12, W.D.D.), previously quite healthy, was suddenly seized on April 21st, 3 days after his son's death, with severe headache (front and back), high fever, vomiting, delirium, convulsions, retraction of the head, arching of the back, hyperaesthesia of the body. No rash was observed. Kernig's sign was present. A squint developed soon after the onset. He remained in a semi-unconscious condition, became progressively emaciated, and died after an illness of 20 days.

Lumbar puncture was not done.

CASE 24.

R.G.P., aged 36 years, male.—A healthy man, was suddenly taken ill on April 14th with pains in the head, vomiting, high fever, convulsions, delirium, retraction of the head, arching of the body, hyperaesthesia. A squint developed soon after the onset, and he became blind on the third day. Kernig's sign was present, and he died in four days. Death was certified as due to influenza and meningitis. No rash was observed.

Lumbar puncture was not done.

CASE 25.

E.W., aged 3 months, female.—A healthy baby, fed at the breast, was suddenly seized on May 4th with headache, vomiting, shrieking, convulsions, high fever, retraction of the head, arching of the back, marked hyperaesthesia of the body. Kernig's sign was present. A petechial rash was noticed on front of chest and abdomen. A squint developed soon after the onset, and the child became blind on the second day. It died after being ill for 5 days. This case had been taken to the home of Case 27 (a cousin) daily within a day of the onset of symptoms.

Lumbar puncture not done.

CASE 26.

O.C., aged 3½ years, male.—A healthy child, was taken ill on April 23rd with croup and with pains at the back of the head and neck, and vomiting. Later there was retraction of the head, fever, convulsions, arching of the back, hyperaesthesia. Kernig's sign was present. No rash was observed. He remained in a drowsy condition, became extremely emaciated, lost control of rectal and bladder centres, and died in 27 days.

No lumbar puncture done.

CASE 27.

H.J.L., aged 2 years 5 months, male.—A healthy child, was suddenly taken ill on April 27th with vomiting, great pain at back of head and neck, fever, delirium, retraction of the head, stiffness and arching of the back. Kernig's sign was present. No rash was observed. The body was hyperaesthetic. The boy cried out a good deal, especially at night. There was no squint. He gradually became more drowsy and emaciated, and died after 37 days' illness. See Case 25.

Lumbar puncture was performed on May 8th. 20 c.c. of a faintly turbid fluid was removed, and this was found to be full of meningococci in pure culture.

CASE 28.

W.R.M., aged 10, male.—A boy not usually robust, received a blow under the cheek on March 27th. The next day he was sick several times, was very feverish, and complained of severe pain at the back of the neck and head, and the head became retracted. He

became delirious, shrieked with pain, especially at night, had convulsive fits, and the body became arched. When I saw him on March 31st he lay curled up on his side, the head was extremely retracted, and the neck stiff. I examined the post pharyngeal region, but could find no evidence of dislocation or fracture. The throat was dirty; there were loose milky patches on both tonsils. There was no paralysis. Kernig's sign was well marked. No rash was observed. There was great hyperaesthesia of the whole body. The temperature was 102.4. The reflexes were exaggerated, and there was a well marked Babinski. He was removed to hospital.

Lumbar puncture was performed. The fluid was faintly turbid, and on culture a pure growth of staphylococcus aureus was obtained, though the slides also showed the presence of cocci, which did not retain Gram's stain. Lumbar puncture was again performed 10 days later, when, from a clear fluid, a pure culture of the meningococcus was obtained, no staphylococci being seen on the slide. The boy became extremely emaciated, and cried if spoken to. He shrieked if touched, and the slightest noise upset him. He ground his teeth incessantly. A squint developed about the third week. After a time he began to eat ravenously, and this continued for many weeks, but he became gradually weaker. The head became very swollen, and on June 13th he had a profuse watery discharge from the right ear. The hands and arms became tightly flexed and contracted, and there were twitchings of the hands and fingers. He was unconscious for the most part, and had lost control of the bladder and rectum, and died after a protracted illness lasting 112 days. The temperature varied from 97 to 102.8 degrees F. The body had become reduced to "skin and bone."

CASE 29.

G.D., aged 15, male.—A strong, healthy youth, was taken ill suddenly on May 2nd with pain in the head (front and back), vomiting, fever, delirium, retraction of the head, and pain in the back. Kernig's sign was present. No rash was noticed. The body was not arched, but the back was kept stiff. He continued in a drowsy state, complaining of pain in the head and back, became more and more emaciated, and died after an illness lasting 23 days. Four days before death he became quite blind.

Lumbar puncture was performed. A small quantity of a thick yellowish matter was obtained, which gave a pure growth of the meningococcus on culture.

CASE 30.

H.Q., aged 1 year 8 months, male.—A healthy child, was suddenly taken ill on May 13th with vomiting, pain in the head, high fever, delirium, convulsions, retraction of the head, hyperaesthesia of the whole of the body. Kernig's sign was present. No rash was observed. He continued in a drowsy state for some time, the temperature ranging from 100 to 105, and then appeared to become almost well, but relapsed and died after an illness of 35 days. A squint developed about the 7th day.

Lumbar puncture was not done.

CASE 31.

B.O'B., aged 10, female.—A healthy child, was suddenly taken ill on May 20th with vomiting, pains in the head, fever, delirium, convulsions, retraction of the head. There was a petechial rash everywhere (except on the forearms, head and feet) up to the size of a pin's head, most marked on front of upper chest and shoulders. Kernig's sign was present. The tongue was dry and was coated with a light brown fur. There was loss of control of bladder and rectum. The body was not arched. She complained of pain in the right chest, but nothing could be found on examination. There was no marked hyperaesthesia. She appeared to be blind on the 3rd day, but recovered her sight next day. She was removed to the Borough Fever Hospital. Lumbar puncture was done; a faintly turbid fluid was removed (30 c.c.), and this gave a pure culture of the meningococcus. She had a watery discharge from the eyes and nostrils. On May 24th she complained of acute abdominal pain, especially over the liver. Nothing could be detected, and the pain disappeared on the 27th. There was no diarrhoea. She became deaf for about 3 days. She recovered perfectly after 25 days.

CASE 32.

M.S., aged 5, female.—A healthy child, was taken ill on May 15th with vomiting, headache, high fever, delirium, convulsions, retraction of the head. I saw the case on May 23rd, and removed it to the Borough Fever Hospital. She was then quite unconscious, the head was somewhat retracted, Kernig's sign was present, the throat was clean, the right pupil was dilated. There was a purulent discharge from both eyes, and a watery discharge from the nostrils. There was no discharge from the ears. On the abdomen were a few petechial spots up to the size of a large pin's head. The patient had a cough, there was nystagmus, and the child could not swallow. Nothing abnormal could be discovered in the chest. The pupils did not react to light. There had been no diarrhoea or abdominal pain.

Lumbar puncture was done on the 23rd. A slightly clouded fluid was obtained (30 c.c. removed), and this on culture gave pure growth of the meningococcus.

On May 25th both pupils were widely dilated and did not react to light. There were twitchings of the hands and fingers, and she had several fits. She never recovered consciousness, and died on May 27th after an illness of 12 days. A postmortem examination was done by me two days after death (vide infra).

CASE 33.

R.B., aged 3 years 9 months, female.—A very healthy child, was suddenly taken ill on May 20th with pain at the back of the head and neck, vomiting, high fever (105 degrees F.), convulsions, delirium, retraction of the head, and arching of the body. Kernig's sign was present. A petechial rash was noticed for the first two days on the lower abdomen and legs. A squint developed early in the course of the disease. There was no hyperaesthesia, but the patient complained if turned. She remained in a drowsy condition for a few

weeks, with loss of control of bladder and rectum, and on June 15th was removed to the Borough Fever Hospital. On that day I performed Lumbar puncture; 10 c.c. of a somewhat turbid fluid was removed, which on culture gave a pure culture of the meningococcus. The temperature on admission was 103.8. A marked feature of this case was the condition of the patient on alternate days. Good and bad days alternated regularly. One day the patient would be extremely ill (the temperature being high), and the next day she appeared perfectly well in every way (the temperature now being subnormal). Lumbar puncture was again performed on June 22nd, 25 c.c. of a milky fluid being removed. On July 10th the temperature fell from 102.4 to below normal, and it remained subnormal, the patient being practically well from this date. Duration of disease, 52 days. Recovery perfect.

CASE 34.

A.W., aged 6 months, female.—A child not usually healthy, was suddenly taken ill on May 23rd at midnight with a fit. Just previous to this it had had a slight cough, kept moaning, and appeared to be wasting. It had a number of fits after this, vomited several times, and became unconscious on the second day, could not swallow, the legs became stiff, the head well retracted, the back arched, a squint developed, there was high fever, and marked hyperaesthesia of the body. About a dozen purpuric spots—the largest the size of a three-penny bit—appeared on the abdomen on the second day. Kernig's sign was present. She remained unconscious, and died after an illness of 5 days.

Lumbar puncture was performed a few hours after death. A turbid yellowish fluid was obtained, which gave a pure culture of the meningococcus.

CASE 35.

G.H., aged 2 years 10 months, male.—A healthy boy, was taken ill suddenly on May 29th with vomiting, and pains in the stomach, diarrhoea (stools dark green), convulsions, fever, headache, delirium, and retraction of the head. Kernig's sign was present. No rash was observed. He remained in a drowsy condition and died in 36 hours. Death was certified as being due to cerebrospinal meningitis.

Lumbar puncture was not done.

CASE 36.

B.J.S., aged 8, male.—A strong healthy boy, was taken ill suddenly on May 29th with pain in the back of the head, and neck, vomiting, abdominal pain, delirium, and high fever (104 degrees F.). The head was retracted, and the back slightly arched. Kernig's sign was present. A few petechial spots developed on the front of the chest and abdomen on the third day. There was slight hyperaesthesia. He was removed to the Borough Fever Hospital.

Lumbar puncture was performed. A slightly turbid fluid was obtained, which microscopically showed diplococci resembling

meningococci, which did not retain Gram's stain. No growth, however, could be obtained on culture. For the first few days the patient could not keep anything down; the abdominal pain continued for about 10 days. Examination of the chest showed a few râles on the right side. Nothing further could be detected. The case is of particular interest as the temperature fell by crisis on the eighth day, strongly suggesting pneumonia. Compare also Case 55 (C.P.D.), in which a similar condition obtained.

CASE 37.

C.R., aged 10 years, female.—A delicate girl, was suddenly taken ill on May 24th with pains in the head and neck, fever, delirium, sore throat, retraction of the head, arching of the back, and hyperaesthesia of the body. Kernig's sign was present. No rash was observed. There was pain in chest and abdomen; no diarrhoea. She gradually sank, became comatose, and died after an illness lasting 16 days.

Lumbar puncture was performed two days before death; 30 c.c. of a milky fluid was removed, which on incubation gave a mixed growth of staphylococcus aureus and the meningococcus.

CASE 38.

E.A., aged 6 years, female.—A fine healthy child, was suddenly taken ill on June 4th with pains in the head, neck, and abdomen; vomiting, diarrhoea, and fever (T. 100). The next day the head was markedly retracted, the back stiff and arched, and the patient became very drowsy, and paralysed in the right arm and leg. Kernig's sign was present. There was a well marked petechial rash, most marked over the front of the neck, chest, shoulders, and abdomen. There were a few spots on the lower part of the back, and on the inner side of the thighs. There were none on the head, feet, or hands. She was removed to the Borough Fever Hospital, but died about 4 hours later after an illness lasting about 48 hours.

Lumbar puncture was done a few hours after death. A thick milk-like fluid was removed, from which a pure culture of the meningococcus was obtained.

A postmortem examination was performed 20 hours after death (vide infra).

CASE 39.

G.G.P., aged 1 year and 3 months, female.—A very healthy child, was seized at 9 a.m. on June 7th with a convulsive fit, which lasted 20 minutes. (The previous day she appeared to be feverish). After this the left arm and leg were paralysed, and twitchings were noticed. She kept putting her hand to the head as if in pain, and was drowsy. She vomited occasionally, the head was slightly retracted, and the body kept somewhat stiff. There was no hyperaesthesia. Kernig's sign was absent, and there was no rash. There was no pain in the belly and no diarrhoea; temperature, 101.6.

Lumbar puncture was performed on the second day; the spinal fluid was fairly clear, and from it a pure culture of the meningococcus

was obtained. On the third day she had about 18 fits. When seen on the fourth day, she was quite conscious and took her food well. The paralysis of the left arm and leg had almost disappeared. Temperature, 102.6. Herpes had now developed on the centre of the upper lip. The child improved up to the tenth day, and appeared to be recovering. After this she became worse, was drowsy, and ground the teeth continually. She died after an illness of 32 days.

CASE 40.

W.A.W., aged $11\frac{1}{2}$ years, male.—A boy previously quite well, was suddenly taken ill on June 10th while at school with pain at the back and top of the head. This became much more severe. There was no vomiting. The next day he complained of severe abdominal pain, but there was no diarrhoea. He was seen by a medical man, who found him lying curled up on his side, quite delirious. Temperature, 102.5. I saw the case next day (12th). The boy was quite delirious, lay curled up on his side, the head was very retracted, and the back was quite stiff and arched. He was extremely tender and shrieked on being touched. A squint had appeared on this day. Kernig's sign was well marked. The belly was very prominent and kept rigid. There was a profuse petechial rash (the spots not being larger than a pin's head) on the back, abdomen, chest, upper limbs and thighs, being especially well marked over the neck, the front of the shoulders and chest, and in the folds of the groin. The rash was also seen (though more red and faint) over the legs and dorsum of the feet. A bluish black herpetic condition of the lower lip and angles of the mouth appeared to-day. The child had had twitchings. There was no paralysis. He had lost control of the bladder. The temperature was 101.8 degrees F. He was removed to the Borough Fever Hospital.

Lumbar puncture was performed, and about 40 c.c. of a milk-like fluid was removed, which on culture gave a pure growth of the meningococcus. On the following day he was more conscious and knew where he was. The herpetic condition of the lips had increased, and now involved the whole of the lips (spreading outwards in places for about one inch, and the alae nasi. He ground his teeth incessantly, making a loud noise. On the 13th the rash began to change colour (the colour changes being those usually seen in a "black eye") and fade, and disappeared completely on the 17th June. He was much better on this day—was quite conscious—said he had no pain in the head or neck, but he exhibited marked hyperaesthesia. The herpetic condition was still increasing, and the lips and alae nasi were covered with a thick scabby mass. The squint disappeared on the 15th after lasting 3 days. He became worse later—wasted rapidly in spite of his being ravenous for food. On July 1st I withdrew 25 c.c. of spinal fluid. On July 3rd there was a yellowish purulent discharge from the left ear; this ceased next day. On July 6th, 85 c.c. of a turbid fluid was removed from the spinal canal by lumbar puncture; on July 11th, 48 c.c.; and on August 8th, 18 c.c. A squint reappeared after wasting almost to a skeleton, and being extremely ill on August 26th for at least 13

weeks, he began to progress towards recovery. For some time later he had only partial control of the lower limbs; but eventually this cleared up, and the squint disappeared. He was discharged on November 12th, having been in hospital for 5 months.

He was a brother of E.W. (Case 41), who was attacked with the same disease 5 days after the onset in his own case.

CASE 41.

E.W., aged $17\frac{1}{2}$ years, female.—A sister to Case 40 (W.A.W.). She had always been healthy, and was quite well up to June 15th (5 days after the onset of the disease in her brother—Case 40, W.A.W.). On June 15th she vomited at mid-day, and complained of severe pain in the stomach, and severe frontal headache. She went to bed and slept till 8 p.m. She then awoke, was quite delirious, and tossed about all over the bed. She passed everything into the bed. I saw the case next day, June 16th. She then lay on her side, curled up in bed; the head was markedly retracted, and she was delirious and almost unconscious. There were marked twitchings of the hands and arms. The teeth were tightly clenched, and she ground them the whole time. The temperature was 102.8 degrees F. Kernig's sign was marked, and there was marked hyperaesthesia. The belly was prominent and kept rigid. There was a profuse petechial rash (none of the spots being larger than a large pin's head) of a blue red colour, very marked over the front and sides of the neck and the front of the upper chest and upper arms. The rash was also found on the front of the groins, the abdomen, the thighs, and the back in the lumbar region. There was no rash on the scalp, face, lower arms, hands, lower legs or feet. There was no squint, no herpes, no diarrhoea, and no charge from nose, ears, or mouth.

I performed Lumbar puncture. A white turbid milk-like fluid was removed, which on culture gave a pure growth of the meningococcus. The next day there was a slight watery discharge from both eyes. She was very ill for nearly a fortnight, during which she vomited several times and complained of pain in the back of the neck and in the abdomen. On the 29th June, she appeared to be practically well. This continued until July 3rd, when she complained of headache and had a relapse. She would have occasional good and bad days; on the former she appeared perfectly well; on the latter she would vomit several times and complain of severe pain in the head and the back of the neck, and the temperature would be raised (see Temp. curve, *infra*). This variable condition continued until July 31st, after which she became well and made a perfect recovery. (Cp. Case 40, removed from the same house).

CASE 42.

G.P., aged 20, male.—A strong, well developed sailor, was admitted to the Borough Fever Hospital on June 13th, having been certified as a case of enteric fever. He had arrived at Swansea from Glasgow about a week previously, and was found a few days later wandering about the town in a semi-conscious condition. On admission to the fever hospital, he was stone deaf (his hearing

previous to the onset of the illness had been normal); he complained of pain in the head, back of the neck, chest, and back. He had previously had some diarrhœa. The tongue was coated with a thick white fur, he was somewhat delirious, and shouted out if moved. There was well marked Kernig's sign. No rash was present.

Lumbar puncture was performed. After repeated efforts, lasting for nearly an hour, I succeeded in getting out about 2 c.c. of very thick yellow pus like that seen in a cold abscess. This on culture gave a pure growth of the meningococcus. The patient was in hospital for 24 weeks. For the first 11 weeks he gradually wasted until he became reduced almost to a skeleton. He would occasionally have good and bad days, and on the former appeared perfectly well. (Cp. Temp. curve). This variable condition was a marked feature of many of the cases treated in hospital. Lumbar puncture was performed on several occasions, and on one of these I removed as much as 230 c.c. of fluid from the spinal canal. After the eleventh week he began to recover, and recovery was perfect except for the fact that he remained steno deaf. He was treated for the deafness, but left the town after some slight improvement. After this the man left the district, and the case was lost sight of.

CASE 43.

M.E.R., aged 1 year 5 months, female.—A child not usually robust, was suddenly taken ill on June 5th with vomiting, fever, pain in the head and neck, retraction of the head, arching of the body, convulsions, twitchings, and sore throat. Kernig's sign was present. It remained in a drowsy condition for the most part, and died after an illness lasting 44 days. A squint developed on the eighteenth day and lasted till death. A profuse petechial rash was noticed. This was of a blue red colour—the spots not being larger than a pin's head—and lasted for one week. It appeared on the front of the upper chest and shoulders, the abdomen and thighs.

Lumbar puncture was done $1\frac{1}{2}$ hours after death. A turbid fluid was removed, which on culture gave a pure growth of the meningococcus.

CASE 44.

E.H., aged 25 years, female.—On March 18th she complained of sore throat, difficulty in swallowing, pain in the head, and at back of neck, aching, tenderness and stiffness of the limbs, and vomiting. A squint appeared on the first day. She had several loose actions, light in colour.

On March 23rd she was admitted to the Borough Fever Hospital, having been certified as a case of diphtheria. On examination, the throat was found covered with a thin white deposit, easily removed in parts, leaving a raw surface and some ulceration. A swab was taken, but no diphtheria bacilli were found. There was a purpuric petechial rash over the hips, legs and ankles. The patient was very ill, kept groaning and complaining of pain in the head, neck, and limbs. The head was retracted. The cheeks were very flushed.

She was delirious at times. Temperature, 101.8. Kernig's sign was present. On March 27th she complained of abdominal pain. There was diarrhoea. The blood was examined on this day for typhoid, and gave a slightly positive Widal reaction. The blood was again examined nine days later, and gave a negative Widal reaction. The patient had never had typhoid.

Lumbar puncture was performed about this time, and a small quantity of thick yellow pus removed, which on culture gave a pure growth of the meningococcus.

The patient steadily lost ground, she became extremely wasted, and at times vomited for days at a time. On May 24th a patch of purpuric spots appeared on the left side of the abdomen; and on the following day the rash appeared over the whole surface of the abdomen.

Towards the end the pulse became markedly intermittent, and she died on May 27th after an illness lasting 68 days. A postmortem examination was performed (for notes see *infra*).

CASE 45.

W.H., aged $3\frac{1}{2}$ years, male.—A healthy, well nourished child, was suddenly taken ill on April 24th with vomiting, sore throat, pain in stomach, convulsions, fever, pain in the head and neck, stiffness of the body, and some retraction of the head. There was marked hyperaesthesia of the body, and Kernig's sign was present. Previous to this onset there had been diarrhoea for some days. No rash was observed. He died after an illness lasting 61 days.

No lumbar puncture was performed.

CASE 46.

H.R., aged 8 years, male.—A healthy child, was suddenly taken ill on June 10th with severe pains in the abdomen, head, and neck, fever, delirium, vomiting, retraction of the head, arching of the back. There was no diarrhoea. The abdomen was very distended and rigid. Kernig's sign was present. The condition improved somewhat for a time; later he became drowsy, herpes developed, and a purpuric petechial rash was noticed on the chest, back, loins, buttocks and abdomen. The abdominal pain and rigidity continued for 19 days, when the lad became quite unconscious. He was removed to the Borough Fever Hospital on July 1st, and died on July 3rd after an illness of 23 days.

Lumbar puncture was performed the day before death. A fairly clear fluid was obtained, which on culture gave a pure growth of the meningococcus.

On April 21st, a child (aged 2 years 4 months) residing in the same house, was taken ill suddenly with sickness, fits, pains in the head and neck, fever, and died in 24 hours. This was probably a case of cerebrospinal meningitis.

CASE 47.

T.C.S., aged 5 months, male.—A healthy baby, was taken ill suddenly on June 23rd with vomiting, convulsions, high fever, cough, and pains in the head. I saw the case on the 26th. The child lay curled up on its side in a drowsy state; the head was retracted, the neck, arms, and legs were stiff. Kernig's sign was well marked. No rash could be seen. There was a purulent discharge from the nose and eyes. Temperature, 103.6.

Lumbar puncture was performed; a slightly turbid fluid was removed, which on culture gave a pure growth of the streptococcus. Slides of the spinal fluid showed, in addition to the streptococcus, some diplococci, which did not retain Gram's stain.

The child died on June 30th after an illness of 7 days.

CASE 48.

F.W.C., aged 5 months, male.—A healthy baby, was taken ill suddenly about April 15th with fits and twitchings while being bathed. He was feverish. Later the head became retracted, the body extremely tender—the child crying out if touched. He kept putting his hand to the head as if in pain, and occasionally vomited. No rash was noticed; Kernig's sign was present. Fits became more frequent. Herpes developed later. From the commencement of the illness there was a yellow discharge from the left ear and from the nose. The nasal discharge lasted for two months; that from the ear for a longer period.

I saw the child three months after the onset of the disease, and found it wasted and very drowsy. The temperature was 101.4. Lumbar puncture was done, a slightly turbid fluid was removed, and this on culture showed the presence of the staphylococcus aureus and the meningococcus. The child died after an illness lasting 93 days.

[A brother, aged 2 years, was taken ill on June 7th with pains in the stomach, diarrhoea, and vomiting. On the 9th the head was markedly retracted, the diarrhoea ceased, he became unconscious and blind, was feverish, and had twitchings, and died after an illness of 3 days. In all probability this also was a case of cerebrospinal meningitis.]

CASE 49.

T.C., aged 9 months, male.—A healthy baby was suddenly taken ill on July 2nd with vomiting and fits. A number of bright red spots were noticed over the shoulders, chest and abdomen, and these disappeared in about 10 hours. The head became retracted, the back stiff, there was pain in the head, fever, marked hyperaesthesia of the body, and twitchings of the hands and arms. The abdomen became blown up at the onset. I saw the case on the 14th July. The child was quite blind, and very drowsy. The head was very retracted, there was marked hyperaesthesia of the body, and the limbs contracted. The belly was very distended. Kernig's sign was marked; there was then no rash. I performed lumbar puncture and obtained about

5 c.c. of thick yellow pus, together with a very turbid fluid containing large white flakes (like clots of milk). The pus on culture yielded a pure growth of the meningococcus.

The child became weaker and died after an illness lasting 73 days. A squint appeared a week before death.

CASE 50.

A.L., aged 17 years, male.—A plasterer's labourer, a strong man, was suddenly taken ill on July 4th with sickness and severe pains in the head. Though ill, he continued work for a week. On the 11th he came home and complained of great pain in the head, back, and neck, and was very sick. The same night he became delirious. The head became retracted, there was high fever, Kernig's sign was present, the body was stiff and very tender. No rash was observed. He became comatose, and died on the 14th after an illness of 10 days.

No lumbar puncture done.

CASE 51.

V.W., aged 6 years, female.—A rather delicate child, was suddenly seized on July 10th with vomiting, severe pains in the head and neck, retraction of the head, and high fever. The back was stiff. Kernig's sign was present. No rash was observed. She became drowsy, was removed to the Fever Hospital, and died 7 days later after an illness lasting 16 days.

Lumbar puncture was performed, but nothing could be withdrawn from the spinal canal.

CASE 52.

G.R., aged $2\frac{1}{2}$ years, female.—A well nourished, very healthy child, went to bed on July 11th quite well. At 4 a.m. on the following day she was suddenly taken ill with vomiting and had a fit. Later she complained of severe pains over the head and back of the neck, the head became retracted, and the body arched and very stiff. There was high fever, the body became hyperaesthetic, and Kernig's sign was present. She complained of severe pain in the stomach for the first week. After a week she became unconscious, and died after an illness lasting 21 days. Three days before death she became completely paralysed on the right side, and blind. No rash was observed. There was great pain in the abdomen, and severe diarrhoea for 14 days before death.

Lumbar puncture was not done.

CASE 53.

W.M.G., aged 4 months, female.—A healthy baby, was suddenly taken ill on September 4th with vomiting, convulsions, pain in the back of the head. The head became markedly retracted, there was high fever, and great stiffness (with arching) of the body. Kernig's sign was present. She rapidly became unconscious, and died in 6 days. A

peteelial rash was noticed. She became blind 3 days before death, and the left side of the body became paralysed.

Lumbar puncture was not done.

CASE 54.

B.S., aged 2, female.—A delicate child, was suddenly taken ill early in the morning of April 24th with vomiting, severe pains in the head and neck, and convulsions. A few hours later the head became very retracted, the back stiff, and the child was very delirious. The temperature was found to be 106 degrees F. There was severe abdominal pain at the commencement of the illness, and the belly became swollen and rigid. Kernig's sign was present. Reddish spots were noticed on the back. The child became unconscious—appeared to be blind on the fourth day, and herpes developed about this time. After several weeks the child began to recover; and when I saw it on June 19th (8 weeks after the onset) it had practically recovered except that it was always crying and was very irritable. Previous to the illness the child had always been of a happy and cheerful disposition. I performed lumbar puncture in the hope of relieving any tension which might exist on the brain and cord. 40 c.c. of a fairly clear fluid was removed. Microscopically the slide showed a few diplococci, which did not retain Gram's stain, but no growth was obtained on culture. The next day the child was perfectly well, and was out playing with other children in the usual way. Lumbar puncture had the effect of completely getting rid of the crying and irritability.

CASE 55.

C.P.D., aged 16 years, male.—A strong, well developed youth, who had always been very healthy, was suddenly taken ill on October 23rd, at 7 a.m., with severe pain in the head and neck, fever, and delirium. On the previous day he had complained of feeling very cold. The throat was sore, the body became painful to touch, and Kernig's sign was present.

I saw the case four days after the onset. The boy was then almost unconscious. He lay on his back, the head was stiff, the back arched and rigid. There was well marked Kernig's sign, and hyperaesthesia. No rash could be seen. The temperature was 102.4 degrees F. The tongue was covered with a thick white fur. He had lost control of the bladder and rectum. I performed lumbar puncture, and removed 20 c.c. of a milky fluid, containing a number of large white flakes. This on culture gave a pure growth of the meningococcus. The case was removed to the Borough Fever Hospital the same day. He appeared so ill that I did not expect him to recover. After 24 hours his condition improved, and he became more conscious. This improvement continued; the temperature remained about 102 until the evening of the 30th October, when it fell by crisis to below normal on October 31st (the eighth day of the disease). This sudden fall of temperature on the eighth day simulated pneumonia, but the chest never showed any physical signs of

pneumonia. Compare Case 36 (B.J.S.), in which a similar fall in temperature was noticed on the eighth day. The patient was discharged from hospital on November 20th, having quite recovered.

A further interesting point in this case was this. The blood was tested for typhoid on November 18th, and gave a positive Widal reaction with a dilution of 1 in 50. The patient had never had typhoid fever. A bacteriological examination of the urine in this case gave a pure culture of the meningococcus.

The after history of this case is interesting. He remained quite well until December 27th, when he felt unwell and complained of feeling cold (shivering). The next day he had pain in the back of the head (like pins and needles), pain in the belly and in the knees, diarrhoea, and vomiting. The head became retracted, there was sore throat, the tongue became dry and coated, there was fever, and a squint appeared. He recovered after 3 weeks, and since his recovery he eats ravenously.

CASE 56.

A.E., aged 6 years, female.—A rather weakly child, was suddenly taken ill on October 28th (after having been to school) with severe pains in the head and stomach. She became very delirious. I saw her the next morning. She lay curled up on her side, was delirious, the head was retracted, and the body arched. The temperature was 103 degrees F. Kernig's sign was well marked, there was hyperaesthesia. Herpes labialis was present, and had developed on the previous day. There was a profuse petechial rash on the shoulders and neck, the front of chest and back. Diarrhoea was absent. Lumbar puncture was performed, 15 c.c. of a milky fluid was removed, and this on culture gave a pure growth of the meningococcus. The child was removed to the Fever Hospital, and died on the 30th after an illness of 2 days.

A postmortem examination was performed. (See notes *infra*).

CASE 57.

T.J.J., aged 4, male.—A healthy boy, was suddenly seized with sickness on the evening of November 13th. He came home from school quite well; then went out and picked up a damaged apple, which he shared with E.S. (Case 58). He complained of sore throat and rapidly became delirious, had severe pains in the head and stomach, high fever, the head became retracted, and the body stiff, arched, and hyperaesthetic. He had several fits. Kernig's sign was well marked, and a purple petechial rash was noticed chiefly on the front of the neck, chest, shoulders and abdomen. He became comatose, and died in 32 hours. There was no diarrhoea.

Lumbar puncture was performed after death. A milky turbid fluid was removed, which on culture gave a pure growth of the meningococcus. This case is closely associated with the next, No. 58.

CASE 58.

E.S., aged 3 years 10 months, male.—A healthy boy, was suddenly taken ill at 8 a.m. on November 15th with vomiting, shivering, high fever, pain in the head and neck and stomach. The head was not retracted; the body was stiff. He complained of sore throat. He rapidly became delirious, had several fits, the body was hyperaesthetic, Kernig's sign was present, and about 8 or 9 purple petechial spots were observed on the front of the chest and shoulders. He became comatose and died in 25½ hours. There was no diarrhoea.

Lumbar puncture was performed after death. A milky turbid fluid was removed, which on culture gave a pure growth of the meningococcus. (Compare Case 57).

CASE 59.

H.S.D., aged 40, female.—A healthy married woman, was suddenly taken ill on November 11th with severe pains in the head, pains in the stomach (which appeared to be swollen), shivering, fever, and sore throat. The next day she vomited several times, was very feverish, and became delirious. The body was painful to touch, and Kernig's sign was present. There was no retraction of the head, but the back was stiff. She sank into a drowsy state. I saw her on November 17th. She was then unconscious, lay curled up on her side with the head forward. The neck was rigid. There was incontinence of urine and faeces. Kernig's sign was marked. There were a few red petechial spots on the chest and abdomen. I performed lumbar puncture, and removed a small quantity of very thick yellow pus, which on culture gave a pure growth of the meningococcus. She was removed to the Fever Hospital, and on the next day I withdrew 25 c.c. very turbid spinal fluid. The blood was examined on the 18th for typhoid, and gave a positive Widal reaction with a dilution of 1 in 50. The patient had never had typhoid fever. She never regained consciousness, but died on November 20th after an illness of 9 days.

CASE 60.

B.B., aged 12, female.—A delicate girl, was taken ill suddenly on November 11th (on waking) with cough, shivering, sore throat, vomiting, and severe pain in the head and back of the neck. She soon became delirious, the body became painful to touch, there was retraction of the head (though not very marked), and arching of the body. I saw her on November 17th. She now lay on her side, and was stone deaf. The deafness had come on on November 13th, two days after the onset of the disease. She was drowsy; the pupils were normal. There was marked hyperaesthesia everywhere. About a dozen purple petechial spots were present on the chest and front of the shoulders. There was marked Kernig's sign. Herpes was present at the angles of the mouth. The tongue was coated with a thick, black brown fur. The head was not much retracted; the body was somewhat arched. The temperature was 103.6 degrees F. She was removed to the Fever Hospital. The following day I did a lumbar puncture, and removed 120 c.c. of a fairly clear fluid, and this on culture gave a pure growth of the meningococcus. The

blood was tested for typhoid, and gave a negative Widal reaction with a dilution of 1 in 50. The patient had never had typhoid fever. She had a troublesome cough for a few days. The temperature came down gradually between the 23rd and 27th of November. The deafness completely disappeared on the 28th, and she made a perfect recovery.

CASE 61.

B.L.F., aged 9 years, female.—A healthy girl, was taken ill suddenly on November 28th with vomiting, and pains in the front of the head. Later in the day she complained of pain in the stomach, and had diarrhoea. She was feverish. The head was not retracted; the body was not arched. The case was notified to me on December 12th as one of enteric fever, and was removed to the Borough Fever Hospital. When I saw the patient shortly afterwards, she lay in bed on her back, was fully conscious though a little irritable. There was no retraction of the head, and no arching of the body. The tongue was covered with a dirty brown fur. There was a profuse petechial rash over the whole of the front of the chest, shoulders, and abdomen, and a few spots on the back. The body was tender everywhere. Kernig's sign was present. She had had some discharge from the eyes. There was some cough, and on examination of the chest, nothing could be discovered beyond a few bronchial rales.

Lumbar puncture was performed; a slightly turbid fluid was removed, which on culture gave a pure growth of the meningococcus. She recovered perfectly. Bacteriological examination of the urine gave a pure culture of the meningococcus.

CASE 62.

Ed. W., aged 13 years, female.—A healthy girl, was taken ill suddenly on December 10th with vomiting, pain in the belly, and severe pain in the head and neck. The following day she was a little better. On the 12th she was again sick, complained of severe pain in the head and all down the back, and became delirious. There was marked fever (103.6), the head was very retracted and the body arched. Kernig's sign was present, and about a dozen petechial spots were noticed over the chest and shoulders. The tongue was covered with a thick white fur; the pupils were dilated; there was no herpes, but there was marked hyperaesthesia.

Lumbar puncture was done; thick yellow pus was removed, which on culture gave a pure growth of the meningococcus. On the 21st December the blood was tested for typhoid, and gave a positive reaction (Widal) in a dilution of 1 in 50. The patient had never had typhoid fever.

The patient became paralysed down the whole of the right side of the body, and lost her sight. She recovered her sight on the 10th of January, 1909, but the paralysis still remains (February 28th, 1909). Lumbar puncture has been performed on several occasions in order to relieve pressure on the brain, etc.

The urine was examined bacteriologically in this case, and the meningococcus obtained in pure culture.

The patient died on March 30th, 1909, after an illness of 111 days.

CASE 63.

E.D.E., aged 5 years, female.—A healthy child, went to bed on December 25th quite well. She awoke next morning sick, and complained of severe pains in the head and stomach. She soon became delirious, and very feverish; the head became retracted, and the body stiff. The body became tender to touch. There was no diarrhoea. Kernig's sign was present; no rash was observed. She remained in a drowsy condition, and died after an illness of 4 days.

Lumbar puncture was not done.

MORTALITY.

Of the 63 cases recorded above, 50 died and 13 recovered, giving a mortality of 79.4 per cent. of those attacked by the disease. This figure should be carefully compared with the mortality figure obtained in the case of those patients treated at the Borough Fever Hospital, where of 18 cases so treated, 8 died (44.4 per cent.), and 10 recovered (55.6 per cent.), the mortality figure in this case being 44.4 per cent., which is a little more than one-half of the mortality rate for the whole of the cases. The following table will be found of interest:

		Cases. Males. Females.			DIED.						RECOVERED.					
					No.		MALES.		FEMALES.		No.		MALES.		FEMALES.	
							No.	Per-cent'ge	No.	Per-cent'ge			No.	Per-cent'ge	No.	Per-cent'ge
Whole Out-break	...	63	37	26	50	79.4	31	84	19	73	13	20.6	6	16	7	27
Cases treated in Borough Fever Hospital	...	18	6	12	8	44.4	1	16.6	7	58.3	10	55.6	5	83.3	5	41.7
Cases treated outside	...	45	31	14	42	93.3	30	96.8	12	85.7	3	6.6	1	3.2	2	14.3

IT WILL BE NOTICED THAT THE FIGURES IN THE CASE OF PATIENTS TREATED AT THE FEVER HOSPITAL ARE VERY DIFFERENT FROM THOSE TREATED OUTSIDE. IF A SERUM HAD BEEN USED IN THE FORMER CASE (NO SERUM OF ANY KIND WAS USED IN ANY OF THE CASES IN THE OUTBREAK), THE BETTER RESULTS THEREIN OBTAINED WOULD HAVE BEEN ATTRIBUTED FOR THE MOST PART TO THE BENEFICIAL EFFECTS OF THE SERUM USED. This will be commented upon later, when Treatment is discussed. The deaths are classified in age-periods as follows:—

AGE-PERIODS — DEATHS.

	Under 1.	1-5.	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	Total.
Males ...	5	14	3	2	2	1	0	2	2	0	31
Females ...	3	5	6	3	0	0	1	0	0	1	19
Total ...	8	19	9	5	2	1	1	2	2	1	50

The duration of the disease varied from 11 hours to 112 days.

1	case	died	in	11	hours	from	onset.
2	cases	„	„	24	„	„	„
3	„	„	„	36	„	„	„
4	„	„	„	2	days	„	„
2	„	„	„	3	„	„	„
3	„	„	„	4	„	„	„
4	„	„	„	5	„	„	„
7	„	„	„	6-12	„	„	„
4	„	„	„	16-20	„	„	„
6	„	„	„	21-30	„	„	„
4	„	„	„	31-40	„	„	„
2	„	„	„	41-50	„	„	„
8	„	„	„	50-112	„	„	„
<hr/>							
50							

ATTACK.

The ages of those attacked varied from 3 months to 40 years. The age-periods are classified in the following table:—

AGE-PERIODS — ATTACK.

	Under 1.	1-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	Total.
Males ...	5	16	4	3	3	2	0	2	2	0	37
Females ...	3	7	8	5	1	0	1	0	0	1	26
Total ...	8	23	12	8	4	2	1	2	2	1	63

SEASONAL DISTRIBUTION

The incidence of the disease was greatest in the month of April, as shown in the following table:—

Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
0	1	2	26	12	8	4	0	1	2	5	2	63

CLINICAL SYMPTOMS.

I have classified the symptoms which occurred in the 63 cases. They are as follows:—

Onset sudden	...	...	...	100 per cent.
Pain in the head	...	...	...	97.0 prob. 100
Pain in the abdomen	...	...	...	31.7 per cent.
Pain in the chest	..	...	...	3.2 „ „
Retraction of the head		...	...	92.0 „ „
Arching of the back	...	...	...	73.0 „ „
Hyperaesthesia	..	...	...	63.5 „ „
Vomiting	...	...	...	84.0 „ „
Fever	...	...	...	100.0 „ „
Rash	...	...	...	41.0 „ „
Delirium	...	...	...	70.0 „ „
Convulsions	...	...	...	63.5 „ „
Twitchings	...	...	...	11.0 „ „
Kernig's sign	...	...	...	95.0 „ „
Deafness	...	...	...	4.7 „ „
Diarrhoea	...	...	...	12.7 „ „
Squint	...	...	...	36.5 „ „
Blindness	...	...	...	25.4 „ „
Herpes	...	..	...	17.4 „ „
Sore Throat	...	...	...	22.2 „ „
Discharge from nose	...	...	...	9.5 „ „
Discharge „ eyes	...	...	...	3.2 „ „
Discharge „ ears	...	...	...	4.7 „ „
Paralysis of one side of the body			...	9.5 „ „
Cough	...	...	...	9.5 „ „
Definite history of injury to head			...	3.2 „ „
Loss of control of bladder and rectum			...	39.7 „ „
Distension and rigidity of abdomen			...	8.0 „ „

Widal (typhoid) reaction tested in 5 cases, positive in 3, slightly positive (later negative) in 1, and negative in 1.

In view of the postmortem findings described later on, I wish to draw particular attention to the fact that severe abdominal pain was present in 31.7 per cent. of the cases, distension and rigidity of the abdomen in 8 per cent., and diarrhoea in 12.7 per cent. As far as I am aware these facts have not been clearly brought out in the records of other outbreaks. They have a very important bearing on the probable path of infection in these cases. (Vide infra).

Further, it is worthy of note that the typical typhoid (Widal) reaction was given in certain cases which had never had typhoid fever, and which had been shown to have been cases of spotted fever by the clinical features, and by bacteriological examination of the spinal fluid, and in one case by a further examination, postmortem.

ONSET.—In every case the onset was sudden, and in a large number of the cases the suddenness was simply appalling. A child would go to bed at night perfectly well in every way, and would wake up suddenly from its sleep, shrieking and complaining of frightful pain in the head; or a child would return home from school apparently quite well, and would suddenly become delirious, shrieking, and complaining of pain in the head, etc. In one case (No. 39) the onset was characterised by a convulsive fit, which lasted 20 minutes, after which the left arm and leg were found to be paralysed. In another case (No. 42) the patient was found wandering about the streets in a semi-conscious condition. He recovered after a long illness, but had no recollection of the onset of the disease.

A **RASH** was present in 41 per cent. of the cases. It usually appeared early in the disease and disappeared in about 5 or 6 days. The spots were generally of a blue red colour, but were sometimes almost bright red, and were hardly ever larger than a large pin's head. In many cases the spots resembled flea-bites; whilst in some of the cases both rash and flea-bites were present. In a few of the cases only 6 or 7 spots could be discovered; while in some others the rash was very profuse. The parts of the body usually affected with the rash were the front of neck, shoulders, and chest, and after these, the abdomen. The head and limbs were generally free.

DEAFNESS occurred in 3 cases (4.7 per cent.). In one (No. 31) this lasted for three days, in another (No. 60) for 15 days, and in the other (No. 42) throughout the course of the disease (11 weeks). The deafness in each case was complete. Cases 31 and 60 recovered their hearing, but No. 42 did not do so.

BLINDNESS occurred in 25.4 per cent. of the cases. In those cases which recovered from the disease the sight returned; in one case (No. 22) only after the lapse of about 6 months.

GRINDING OF THE TEETH was very marked in some of the cases (Nos. 28 and 40), and was almost incessant. The noise could be heard all over the ward.

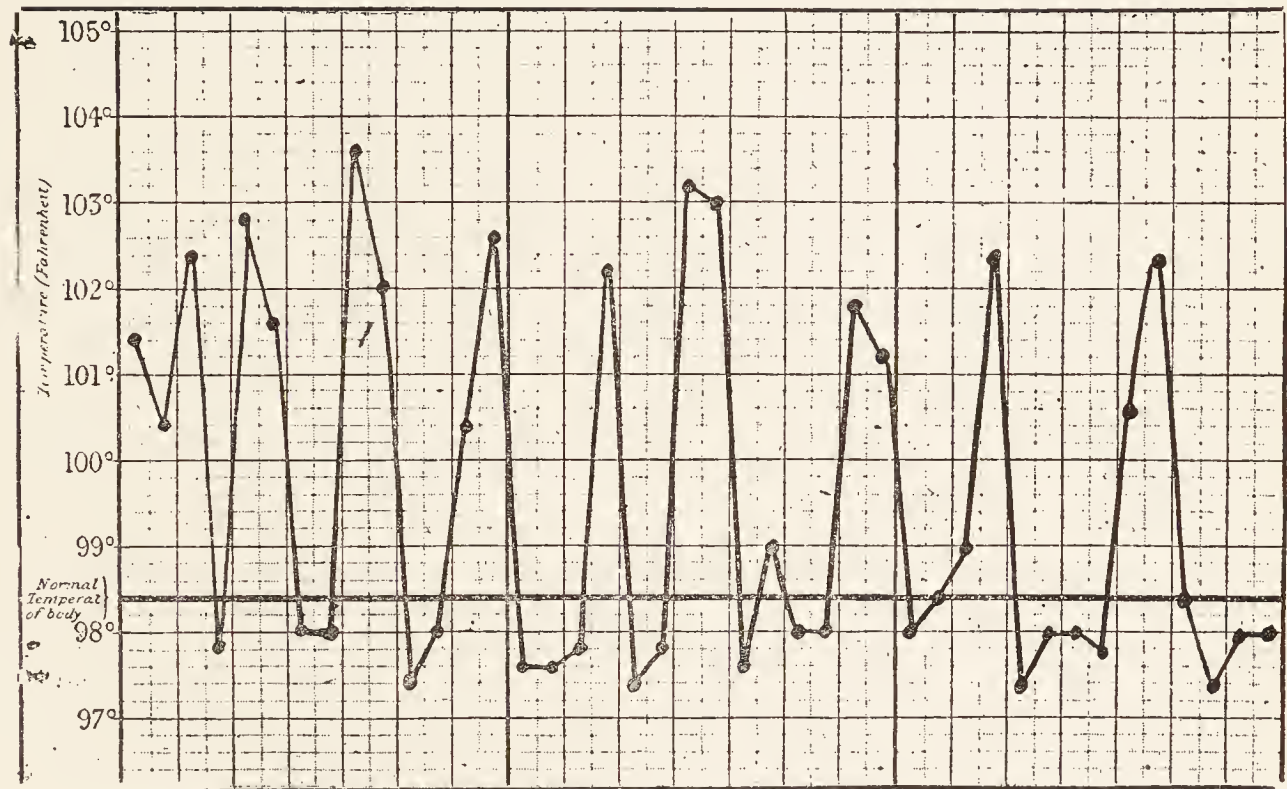
A **PECULIAR ODOUR** (not unlike that observed in cases of typhoid fever) was noticed in many of the cases. A good deal of this was probably due to the fact that many of the patients had lost control of the bladder and rectum.

TEMPERATURE.—As a rule the temperature did not rise above 103 degrees F., though in some cases it approached 104 degrees. The temperature curves were extremely variable as shown by the following charts. In two cases (Nos. 36 and 55) the temperature fell by crisis on the eighth day, suggesting pneumonia. In some of the cases (cp. Temp. Curve Case 33 R.B.) **AN EXTRAORDINARY FEATURE WAS THE ALTERNATION OF GOOD AND BAD DAYS.**

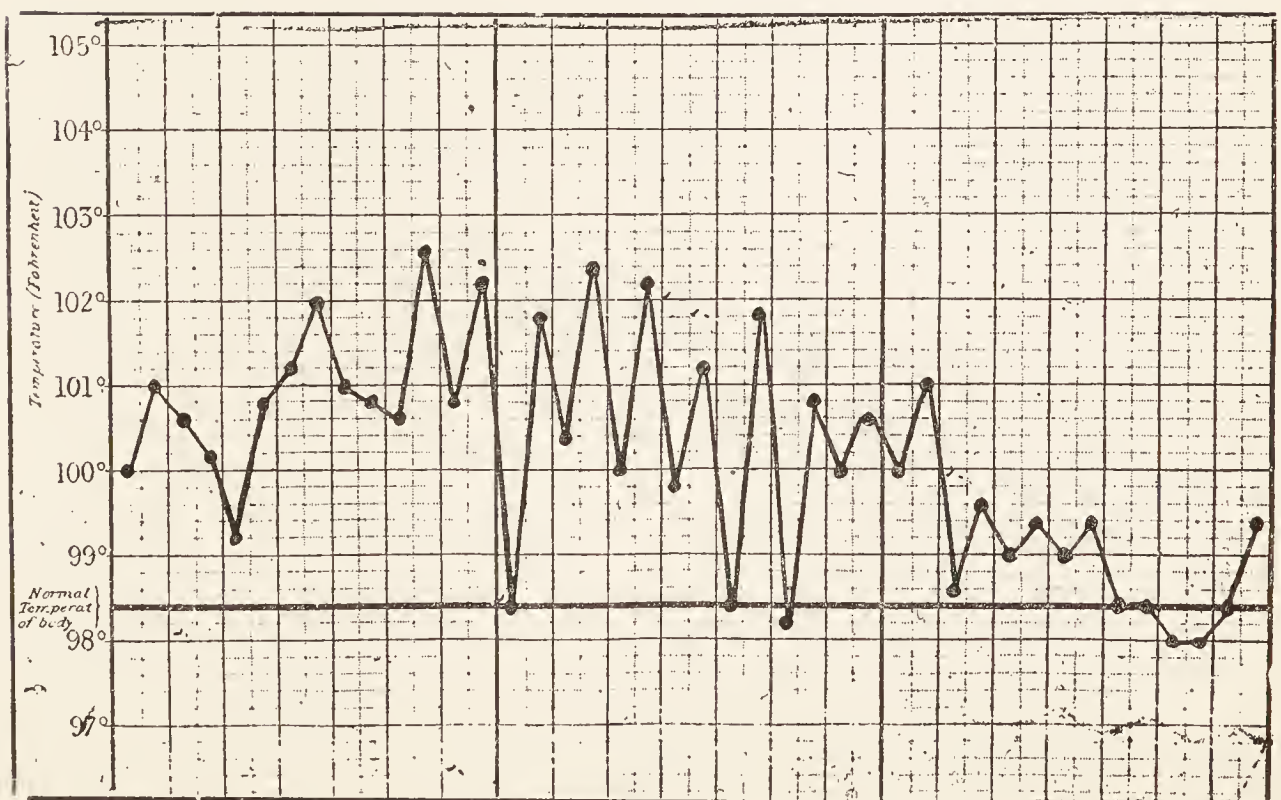
On the former the temperature remained below normal, and the patient appeared to be perfectly well in every way, and on the latter it rose to between 102 degrees and 104 degrees, the patient then being extremely ill.

CASE 33.

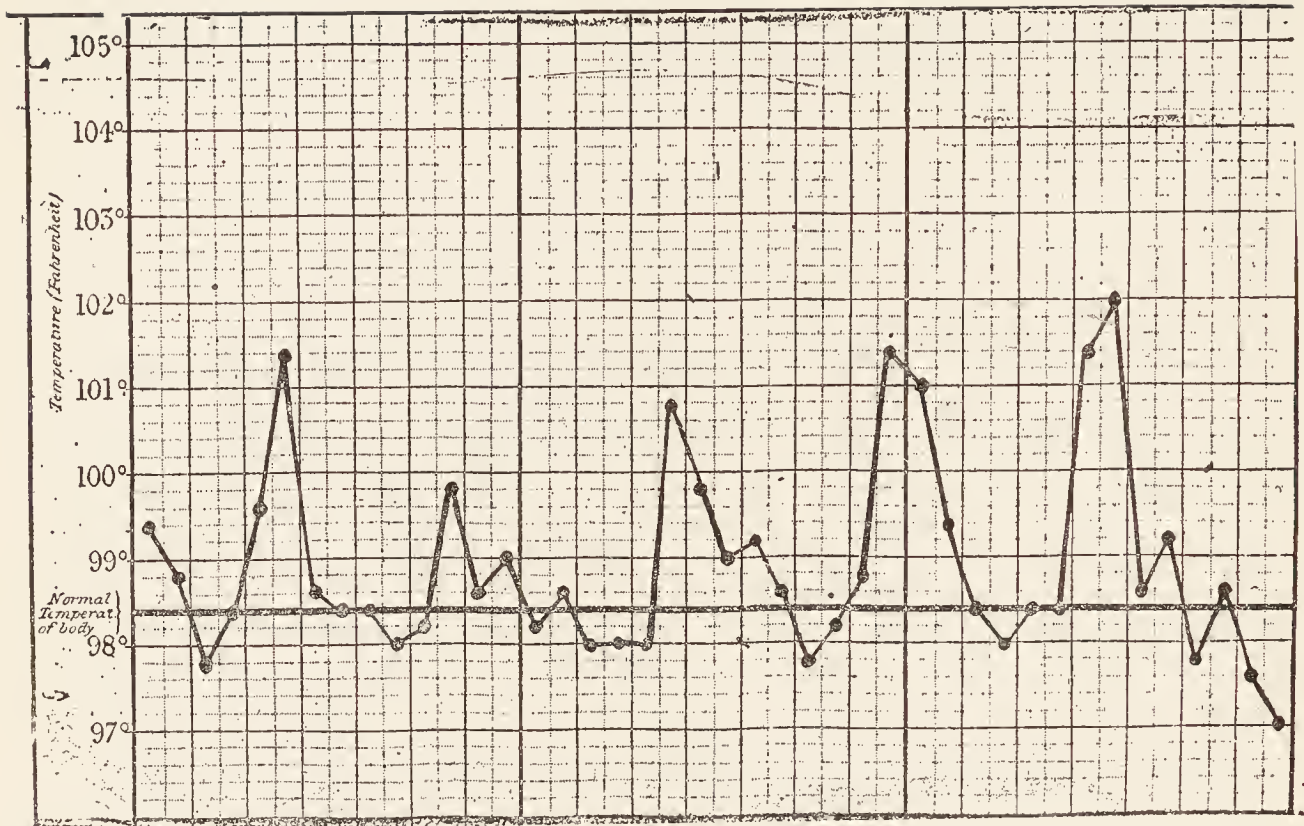
Temperature Curve shewing alternate good and bad days. The temperature later remained subnormal and the patient recovered.



CASE 40.



CASE 41.



WASTING.—In a number of cases extreme wasting occurred, the patients being reduced to mere skeletons.

APPETITE.—Several of the patients, during the course of the disease, developed a large appetite, and were ravenous for food.

THE PULSE was usually soft and feeble, and was oftentimes very irregular in frequency

THE TONGUE is usually dry and covered with a thick white or brown fur.

HISTORY OF INJURY TO THE HEAD BEFORE ONSET OF SYMPTOMS.—In two cases (Nos. 21 and 28) there was a definite history of injury to the head. In the first case the injury took place 2 days, and in the second case 1 day, before the onset of symptoms. As both these cases died, they are of great INTEREST FROM A MEDICO-LEGAL STANDPOINT, the injury being a mere coincidence, and having nothing whatever to do with the disease which caused death.

THE CHARACTER OF THE SPINAL FLUID REMOVED BY LUMBAR PUNCTURE is tabulated below:—

Very thick yellow pus ...	...	...	2
Thick yellow pus ...	...	...	5
Milk-like fluid ...	...	...	9
Turbid yellow fluid ...	...	...	1
Fairly turbid fluid ...	...	...	3
Fairly clear fluid ...	...	...	12
Nothing could be withdrawn ...	...	...	1
Total ...			33

Many of the cases in which the spinal fluid was fairly clear showed microscopically a large number of organisms, and gave profuse growths of the meningococcus on culture. **THE DEGREE OF TURBIDITY OF THE FLUID WAS THEREFORE NO INDICATION OF THE NUMBER OF ORGANISMS PRESENT.** Lumbar puncture was performed in 33 cases.

TREATMENT.

The treatment of those cases admitted to the Borough Fever Hospital consisted, in addition to excellent nursing, in applying ice-bags to the head, and keeping the patients on a milk diet, reinforced with brandy (in the case of one adult up to 6 ounces per day); and, further, in **REPEATED LUMBAR PUNCTURE**—daily, when necessary. **NO SERUM OR ANTISEPTIC OF ANY KIND WAS INJECTED.** The latter point is of extreme importance, as will be readily appreciated by comparing the figures previously given in the Mortality Tables, for the cases treated in the Borough Fever Hospital and those treated outside in their own homes. The mortality in the latter case was 93.3 per cent. of the cases attacked, and in the former 44.4 per cent. **THE MORTALITY IN THE CASE OF THE BOROUGH FEVER HOSPITAL WAS THEREFORE LESS THAN ONE-HALF THAT WHICH OBTAINED OUTSIDE.** The patients admitted to hospital were in no way “picked” cases. I admitted all cases where the consent of the parents could be obtained for removal. Now, had a serum been given in the case of the patients in the Fever Hospital, the better results would undoubtedly have been attributed to its use, and the value of good nursing and repeated lumbar puncture would have been altogether ignored. I wish to emphasise this point, because a large amount of literature has been published on the value of various sera in this disease, with results of a very divergent nature. In order to still further compare the results obtained inside and outside the hospital, I thought it as well to further consider only those cases treated outside the hospital in which lumbar puncture was performed once for diagnostic purposes. Of 15 cases in which that was done, 5 were done after death and 10 during life (1 of the latter was done in a case—No. 54—which I saw 8 weeks after the onset, the child then having practically recovered, but was always crying and irritable). Of the 10 cases in which lumbar puncture was performed during life, 9 died and 1 (No. 54) recovered. In the latter case the irritability and crying disappeared completely after the withdrawal of 40 c.c. of spinal fluid, and the child was perfectly well next day, and was out and about playing with the other children in its usual happy manner. The mortality in the case of patients treated outside, on whom lumbar puncture was performed once only during life, for diagnostic purposes and not for treatment, was practically 100 per cent., as compared with a mortality figure of 44.4 per cent. in the case of the Borough Fever Hospital. The difference in the two cases consisted in this—that in hospital the patients were subjected to repeated lumbar puncture for purposes of treatment, and, further, had the advantage of splendid nursing. To what extent the value of repeated lumbar puncture can be separated from the former it is difficult to say; but both are very important factors in the treatment of the disease.

The practice adopted by me consisted in withdrawing spinal fluid until a negative pressure was shown by the piston rod of the syringe being sucked back. The largest amount of fluid so withdrawn at one sitting amounted to 230 c.c. (Case 42).

THE VALUE OF SERUM TREATMENT.

Under the heading "Treatment" I have shown that repeated lumbar puncture and good nursing were sufficient **IN THEMSELVES** to account for a reduction of the mortality figure from 93.3 per cent. to 44.4 per cent. The cases admitted to hospital were often of a more severe type than those which remained outside.

In view of the great reduction of the mortality figure **WITHOUT THE USE OF INJECTIONS OF ANTISEPTICS, OR OF SERUM**, it will be interesting to record the opinions of others as regards the value of serum in cases of cerebrospinal meningitis.

At the British Medical Association meeting at Sheffield in 1908, Dr. Ker, of Edinburgh, said that he had treated 30 cases of the disease at the Edinburgh Hospital with Flexner's serum. Of these 17 recovered and 13 died, the mortality thus being about 43 per cent., as compared with 73.3 per cent. for the death rate of the whole epidemic of 138 cases (including those treated with Flexner's serum); and contrasted with 80.5 per cent. for the 108 cases otherwise treated.

At the same meeting Dr. Robb, of Belfast, speaking of treatment by lumbar puncture and the intraspinal injection of Flexner and Jobling's antimeningococcic serum, said that at Belfast between the beginning of 1907 and the end of August of the same year, he had charge of 275 cases, in which case the mortality was 72.3 per cent. Included in these 275 cases were 69 cases treated by **HYPODERMIC** injections of various forms of antimeningitis serum (three different varieties were used—Kolle and Wasserman's, Ruppel's, and Burroughs and Welcome's), but the death rate in these was not reduced, being 74 per cent. In September, 1907, Dr. Robb began the use of **INTRASPINAL** injections of the serum of Flexner and Jobling. The total number of cases thus treated was 90. Of these 27 died, a case mortality of 30 per cent. But he stated that as soon as possible after admission lumbar puncture was performed, **AS MUCH CEREBROSPINAL FLUID AS POSSIBLE WAS ALLOWED TO FLOW OFF**, and 30 c.c. of serum injected into the canal. In more severe cases this was repeated daily, for 3 or 4 days, etc. Here, then, lumbar puncture was repeatedly performed, and, in addition, serum was injected. Dr. Robb attributes the whole of the better results in the 90 cases solely to the effects of the serum, and has ignored altogether the effects of the repeated withdrawal of spinal fluid by lumbar puncture. **IN VIEW OF THE RESULTS OBTAINED BY ME IN SWANSEA, I AM INCLINED TO INTERPRET HIS RESULTS IN ANOTHER WAY, AND TO ATTRIBUTE THE WHOLE OF THE BETTER RESULTS IN HIS CASES TO THE REPEATED LUMBAR PUNCTURE AND NOT IN ANY WAY TO THE SERUM USED.** It will be noted that repeated lumbar puncture was not performed in his 275 cases up to the end of August, 1907

As in all other cases where serum is injected into the spinal canal, lumbar puncture and removal of spinal fluid is previously performed (in many cases AS MUCH FLUID AS POSSIBLE BEING ALLOWED TO FLOW OFF), I do not propose to discuss the value of the serum further, since none of the experimenters differentiate between the value of repeated lumbar puncture *per se*, and the value of repeated lumbar puncture *plus* injections of serum, etc.

“During the prevalence of cerebrospinal fever in Glasgow between May, 1906, and May, 1908, Dr. J. R. Currie and Dr. A. S. M. MacGregor treated 105 cases with antimeningococci serum; 225 cases were treated by other methods. Injections were given subcutaneously or into the spinal canal. In order to ascertain the true value of the serum, these observers considered it fitting to approach the matter from two separate points of view—namely, from the clinical and the statistical. From clinical observation only they were forced to the conclusion that the administration of the serum in their cases was not followed by any consistent modification of the natural course of the disease. On the statistical side they were unable to report that the total case-mortality was reduced.”—(“Lancet,” December 26th, 1908).

TYPHOID WIDAL REACTION IN CASES OF CEREBROSPINAL MENINGITIS.

In five of these cases of cerebrospinal meningitis the blood was sent to the Public Health Laboratories at Cardiff, with a request that it should be examined in each case for typhoid fever. Owing to the fact that some of the cases were certified originally as typhoid fever, and indeed presented many of the features of this disease, I thought it would be interesting to see whether any of these cases (proved to be undoubted cases of cerebrospinal meningitis by bacteriological examination of the spinal fluid) would give a positive typhoid Widal reaction when the blood serum was examined. In the five cases chosen, careful enquiries showed that **NONE OF THE PATIENTS HAD EVER HAD TYPHOID FEVER.** The results are shown in the following table:—

Case.	Date of Examination of Blood.	Result.
44	(1) March 27th	Slightly Positive Widal reaction.
	(2) April 5th	Negative Widal reaction.
55	Nov. 18th	Positive Widal dilution 1/50.
59	Nov. 18th	Positive Widal dilution 1/50.
60	Nov. 18th	Negative.
62	Dec. 20th	Positive Widal dilution 1/50.

In three of the five cases a positive Widal reaction was given, and in one other case a slightly positive reaction was given at one stage of the disease. **THIS RAISES THE VERY IMPORTANT QUESTION OF THE REAL VALUE OF WIDAL'S REACTION AS A TEST FOR TYPHOID FEVER.** Where a positive reaction is given (and in the absence of bacteriological examination of the spinal fluid), these cases would most certainly have been considered to have been cases of typhoid fever with marked cerebral symptoms. In view of the results presented above (one of the cases, No. 44, was examined postmortem), it would perhaps be advisable in cases of suspected typhoid fever with cerebral symptoms to examine the spinal fluid bacteriologically, for without this one could never be certain that the case was one of typhoid fever even when a positive Widal reaction is given. Had the point suggested itself to me earlier in the outbreak, I should have had the blood examined in a far larger number of cases.

In the "British Medical Journal" of September 21st, 1907, Page 713, Drs. St. Clair Symmers and James Wilson, of Belfast, quote a similar case of "epidemic cerebrospinal meningitis with typhoid agglutinins in the blood." In the "British Medical Journal" of February 16th, 1907, Dr. Cowie, the Medical Officer of Health of Burton-on-Trent, quotes a case of "typhoid fever simulating cerebrospinal fever," in which the diagnosis of typhoid was made solely on positive Widal reaction being obtained, although he says "that the case had all the characteristic symptoms of cerebrospinal fever, with the exception of the purpuric rash, and that the case had practically none of the usual symptoms of typhoid fever."

POSTMORTEM EXAMINATIONS.

CASE 32.

M.S., aged 5 years, female.—The body was that of a fairly well nourished child. A few purple petechial spots were seen on the front of the abdominal wall. The brain was distended, oedematous and engorged; the lateral ventricles showed great distension with a fairly turbid fluid. At the base of the brain, extending backwards from the optic nerves and commissure to below the middle of the cerebellum, was a yellowish turbid (and in parts jelly-like) exudation, which extended down the spinal canal. The upper surface of the brain was free from lymph. Nothing abnormal was found in the chest. On opening the abdomen, the mesentery was found to be full of red inflamed lymphatic glands, enlarged up to the size of a marble. The mucous membrane of the gut was normal. The liver was dark in colour, and showed yellow areas on the surface up to the size of a shilling piece, and these extended in some cases to a depth of one inch.

The spleen was slightly enlarged—very hard and red

The kidneys were engorged and firm, and in the pelves was found a thick milky fluid, which, microscopically, showed polymorphonucleated white corpuscles and numerous diplococci. Cultures were made on nutrose ascitic agar from the base of the brain, the

mesenteric lymphatic glands, the fluid in the pelves of the kidneys, and the urine, and in all cases a pure culture of the meningococcus was obtained.

CASE 38.

E.A., aged 6 years, female.—The body was that of an extremely well nourished child. There was a well marked purple petechial rash over the front of the chest, neck, shoulders and abdomen. The blood vessels of the brain were very engorged, and the dura mater tense. The sulci on the convex surface of the brain were full of pus, slightly more marked on the left than the right side. Pus was also found at the base of the brain, from the posterior part of the optic commissure backwards, along the cord, below and above the cerebellum. The lateral ventricles were slightly distended with turbid fluid. The heart was firm; there was a good deal of serious effusion in the pericardium.

The whole of the mesenteric glands were very red and much enlarged. The mucous membrane of the small intestine was not inflamed. The liver contained yellow areas as in Case 32. The spleen was soft. Both kidneys were firm; of a dark colour, and in both pelves and ureters was found milky fluid, which, microscopically, showed pus cells and diplococci, which did not retain Gram's stain.

Cultures were made from the brain, the mesenteric glands, the fluid in the pelves of the kidneys and ureters, and from the urine in the bladder, and in all cases a pure growth of the meningococcus was obtained.

CASE 44.

E.H., aged 25 years, female.—The body showed extreme emaciation. There were purpuric petechial spots on the abdomen. The brain was engorged and oedematous. There was a great distension of the lateral ventricles, the cpendyma was thickened, and the vessels congested. There was a yellowish jelly-like exudation at the base of the brain posterior to the optic commissure, and this extended backwards and downwards along the cord.

The heart was firm, hard, and of a deep brown colour. The lungs were normal. Abdominal examination showed red enlarged mesenteric glands (up to the size of a small walnut). The mucous membrane of the gut was normal. The liver showed yellow areas of degeneration. The gall bladder was distended with dark brown bile. The spleen was enlarged, hard, and firm, and of a deep red colour. The kidneys were small, dark red in colour, and tough on section. The capsules stripped readily. There was nothing abnormal found in the pelves of the kidneys or ureters.

The meningococcus was recovered in pure culture from the exudation in the brain and from the mesenteric glands. But in the case of the urine a negative result was obtained.

CASE 56.

A.E., aged 6 years, female.—The body was that of a fairly well nourished child. There was a profuse petechial rash on the shoulders,

neck and front of the chest, and also on the back. The brain was congested and oedematous. The whole of the convex surface of the cerebrum was covered with pus, and there was a little on the upper surface of the cerebellum. The exudation at the base was not so marked as in the other cases. The cord was bathed in pus. The lateral ventricles were somewhat distended.

The lungs were congested. The pericardium contained in its posterior and upper part about a dram of pus. The mesenteric glands were enlarged (up to the size of a small marble), and were red and congested. The liver showed several yellowish areas extending well down into the liver substance. The spleen was enlarged, soft, and pale. The kidneys were engorged, and pus was found in both pelves. The urine was slightly turbid.

The mucous membrane of the small gut was found to be slightly red and inflamed.

The meningococcus was obtained in pure culture from the brain, mesenteric glands, kidneys, urine, and pericardium.

REMARKS ON THE POSTMORTEM EXAMINATIONS.

The following table summarises some of the important features in connection with these cases:--

CASE.	DURING LIFE.		Mesenteric Glands Enlarged and Inflamed.	Yellow Areas in Liver	Pus in Pelvis of Kidneys.	Mucous Membrane of Gut.	Duration of disease in days	Pericardium.	Diplococcus intracellularis of Weichselbaum isolated from brain, mesenteric glands, pelvis of kidneys, and from the urine.
	Diar-rhoea.	Abdominal Pain.							
32	No	No	Up to size of marble	Yes	Yes	Normal	12	Nil	Yes.
38	Yes	Yes	Up to size of almond	Yes	Yes	Normal	2	Nil	Yes.
44	Yes	Yes	Up to size of small walnut	Yes	No	Normal	68	Nil	Yes, except from kidneys & urine
56	No	Yes	Up to size of marble	Yes	Yes	Slightly inflamed	2	Pus	Yes, and also from pus in pericardium

In connection with the excretion of the meningococcus by the urine, it is interesting to note that I was able to recover the organism, during life, from the urine in three other cases, viz., 55, 61 and 62.

The great enlargement and inflammatory condition of the mesenteric glands was a feature immediately noticed on opening the abdomen. The lymphatic glands elsewhere in the body were not found to be enlarged or inflamed. THIS, TOGETHER WITH THE CONDITION OF THE LIVER, IN MY OPINION, STRONGLY SUGGESTS THAT THE PATH OF INFECTION IN THIS DISEASE IS

THROUGH THE INTESTINAL TRACT, POSSIBLY BY MEANS OF FOOD. It will be noted that I mentioned above that pain in the belly was a prominent symptom in 31.7 per cent. of all the cases observed, distension and rigidity of the abdomen in 8 per cent., and diarrhoea in 12.7 per cent.

DIAGNOSIS.

The diagnosis of the disease, by means of the clinical features alone, is not always possible, but can usually be clinched by a microscopic and bacteriological examination of the spinal fluid, confirmed, if necessary, by a further bacteriological examination of the urine during life, for the organism is excreted by the urine as was shown in a previous portion of this Report. The diseases for which it may be mistaken are the following:—

1. POSTBASIC MENINGITIS.—This disease is probably caused by the same organism, or one very closely allied to it.
2. TUBERCULAR MENINGITIS.—Here the onset is usually slow and insidious.
3. TYPHOID FEVER.—In addition to marked clinical similarities, a typical typhoid Widal reaction is given in many cases of cerebrospinal meningitis.
4. TABES MESENTERICA.—A swollen, rigid and painful abdomen, together with enlarged mesenteric glands and diarrhoea, is a feature of many cases of cerebrospinal meningitis.
5. TYPHUS.
6. INFLUENZA.
7. PNEUMONIA.—In two of the cases quoted above the temperature fell by crisis on the eighth day.
8. INFANTILE PARALYSIS.
9. CONVULSIONS AND FITS IN CHILDREN.
10. HEAD INJURIES.
11. SUNSTROKE.
12. APPENDICITIS.—In some cases of cerebrospinal meningitis, abdominal pain is referred definitely to the region of the appendix.
13. DIPHTHERIA.—Two of the cases had dirty throats and white patches on the tonsils, and were certified as diphtheria.
14. ANY ACUTE DISEASE WITH CEREBRAL SYMPTOMS.

Prof. Osler ("Principles and Practice of Medicine," 2nd Ed., Page 101) says:—"Both typhus and typhoid present symptoms which closely simulate cerebrospinal meningitis. On several occasions, at Montreal General Hospital, cases have been sent into the ward with the diagnosis of cerebrospinal fever. These cases showed high fever, delirium, retraction of the neck, spasm, and tremor of the muscle, and, had not the postmortem examination revealed typhoid lesions and only cerebrospinal congestion, the diagnosis would not have been corrected. I am sure that many of the cases sent into the health offices as cerebrospinal fever are instances of the cerebrospinal form of typhoid."

BACTERIOLOGICAL RESULTS.

Lumbar puncture was performed in 33 cases (52 per cent.). In one of these nothing could be withdrawn from the spinal canal. The spinal fluid was placed in tubes of Nutrose Ascitic Agar (Nasgar), and incubated at 37 degrees C. Films were also made and examined microscopically. The results were as follows:—

Meningococcus in pure culture	...	...	...	26
Meningococcus plus staphylococcus	...	...	...	3
Streptococcus plus microscopically, diplococci, resembling meningococci, and which did not retain Gram's stain	...	...	...	2
No growth, but slide showing diplococci, resembling meningococci, and which did not retain Gram's stain	...	...	...	1
Nothing could be withdrawn from spinal canal	...	...	...	1
Total	...	...	...	33

In the cases in which positive results were obtained, a growth of the organism appeared on culture in about 10 hours. From the primary cultures on nutrose ascitic agar—provided these were kept in the incubator and were not allowed to dry up—subcultures on the same medium could readily be made even up to a period of 8 weeks. As the organism showed all the characteristic features of the diplococcus intracellularis of Weichselbaum on solid and fluid media (e.g., the various sugars), I do not propose to discuss it further.

EXAMINATION OF THE URINE DURING LIFE.

In three cases (Nos. 55, 61 and 62) I was able to obtain the meningococcus from the urine during life. Under "Postmortem Examinations and Remarks" on same, I showed that the organism could be recovered after death from the brain and spinal cord, the mesenteric glands, the pus in the pelvis of the kidneys and ureter, and from the urine.

Annual Report of the Chief Sanitary Inspector

FOR THE YEAR, 1908.

Summary of Work Performed.

Nuisances.

Total Number of Nuisances abated	..	..	5394
Including :			
Drains cleansed and repaired	..	..	943
W.C. appliances repaired	..	..	590
Privies and W.C.'s cleansed and offensive accumu- lations removed	..	..	443
New pails provided	..	..	30
Privies abolished	..	..	20
New W.C's provided	..	..	27
Yard drains provided	..	..	52
Houses repaired	..	..	1081
Houses closed	..	..	1
Houses cleansed	..	..	261
Yards cleansed and repaired	..	..	620
Water fittings repaired	..	..	665
Water provided for domestic purposes	..	..	134
Water provided to W.C.'s	..	..	303
Overcrowding reduced	..	..	35
Animals removed from vicinity of houses		..	72
Other nuisances abated	..	..	117
Total	..	..	5394

Workshops.

No. of Workshops on Register, January 2nd, 1909	..	623
No. of Outworkers on Register, „ „	..	95
No. of Visits of Inspection during the year	..	1664

SUMMARY OF SANITARY DEFECTS REMEDIED :—

Workshops cleansed, limewashed and repaired	..	78
Ventilation improved .. ..	..	4
Yards cleansed and repaired	...	20
W.C.'s cleansed and repaired	..	27
Drains cleansed and repaired	..	7
Overcrowding reduced	..	3
Water provided to W.C.'s	..	11
New W.C.'s provided ..	..	1
New pails provided ..	..	1
Water fittings repaired	..	10
New Workshops reported to H.M. Inspector of Factories ..		16
Total .. ..	...	178

Dairies, Cowsheds, and Milkshops.

No. of Cowkeepers on Register, January 2nd, 1909	..	47
No. of Milksellers on Register, January 2nd, 1909	..	234
No. of Milksellers registered during the year ..	..	29
No. of Cowkeepers registered during the year	..	3
No. of Visits of Inspection	..	1069

SUMMARY OF SANITARY DEFECTS REMEDIED :—

Premises cleansed and repaired	..	42
Yards cleansed and repaired	..	33
W.C.'s cleansed and repaired	..	9
Drains cleansed and repaired	..	15
Water provided to W.C.'s	..	1
Water fittings repaired	..	9
Yard drains provided	..	2
Utensils provided with covers	..	2
Overcrowding reduced in cowsheds	..	1
Cows cleansed (udders, teats and hind quarters)	..	14
Dairies provided ..	...	3
Other nuisances abated	..	2
Total .. ..	..	133

Common Lodging Houses.

No. of Houses on Register, January 2nd, 1909	..	25
No. of day inspections	.. ..	779
No. of night inspections	.. .	190

SUMMARY OF NUISANCES REMOVED.

Premises and yards cleansed and repaired	..	25
Ventilation improved	... ..	34
Rooms limewashed...	.. ..	290
W.C.'s cleansed and repaired	.. ..	62
Water fittings repaired	.. ..	5
Drains cleansed and repaired	.. ..	11
New washing basins provided	.. ..	10
New beds provided	.. ..	160
New mattresses provided	.. ..	20
New bedsteads provided	.. ..	23
New quilts, sheets, blankets, &c. provided	.. ..	616
Bedsteads cleansed and enamelled	.. ..	75
New lockers provided	.. ..	12
Other nuisances abated	.. ..	1
<hr/>		
Total	.. ..	<u>1344</u>

Provision Shops.

No. of Inspections	.. ..	933
Butchers' shops	.. ..	214
Grocers' shops	.. ..	291
Greengrocers' shops	.. ..	114
Fishmongers' shops	.. ..	174
Ice Cream shops	.. ..	98
Ice Cream barrows in street	21
Refreshment houses	21
<hr/>		
Total	<u>933</u>

No. of Sanitary defects remedied	161
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UNSOUND FOOD SEIZED AND DESTROYED :—

Vegetables	424 lbs.
Fruit	256 „
Poultry	124 „
Meat	..	..	..	..	50 „
Game	..	..	..	..	27 „

Disinfection.

Rooms fumigated after infectious sickness	..	..	290
Articles disinfected at the Disinfecting Station	..	..	3313

Drain Testing.

No. of House drains tested	..	..	..	226
„ found in order	..	..	..	99
„ „ defective	..	..	..	127

Lady Inspector's Report.

Systematic House to House Visitation—No. visited	..	579
Inquiries <i>re</i> Deaths of Infants under one year	..	320
Houses visited and disinfection offered after death from Phthisis	..	139
Rooms fumigated	..	99
Workshops visited where females are employed	..	510
Houses re-visited	..	1516
Visits to cases of measles and chicken pox	..	217
New Seats provided at shops for Assistants	..	10
Houses, &c., repaired	..	171
Houses cleansed (re-papered, colour-washed, &c.)	..	73
Boat-shaped bottles substituted for long-tubed feeding bottles	..	18
Houses where births have occurred visited, and pamphlets <i>re</i> Feeding of Infants distributed	..	2938

Food and Drugs Act.

ARTICLES ANALYSED.				No. of Samples Taken.	No. Reported Genuine.	No. Reported Adulterated.
Fresh Milk	..	..	..	196	179	17
Butter	..	..	..	46	45	1
Skim Milk	..	..	..	4	2	2
Cheese	..	..	..	4	4	..
Margarine	..	..	..	4	4	..
Ice Cream	..	..	..	4	4	..
Cream	..	..	..	3	2	1
Whisky	..	..	..	2	2	..
Rum	..	..	..	2	1	1
Gin	..	..	..	2	2	..
Coffee	..	..	..	2	2	..
Bread	..	..	..	2	2	..
Tinned Tongue	..	..	..	2	2	..
Dried Peas	..	..	..	1	1	..
Tinned Sprats	..	..	..	1	1	..
Sweet Spirits of Nitre	..	..	..	1	1	..
Glycerine	..	..	..	1	1	..
Eucalyptus Oil	..	..	..	1	1	..
Camphorated Oil	..	..	..	1	1	..
Oatmeal	..	..	..	1	1	..
Total	..	..	..	280	258	22
Water	..	..	..	24	..	..

Systematic House to House Inspection.

NAME OF STREET.	No. of Houses Inspected.	Choked and defective drains	W.C. pans foul and appliances defective.	Defective Houses.	Waste of Water discovered.	Injurious and foul accumulations.	Dilapidated and foul yards.	Other Nuisances.
Alexandra Terrace ...	9	1	6	9	3	1	6	...
Argyle Street ...	90	...	10	6	4	...	8	2
Ash Street ...	6	...	...	...	1	...	1	...
Beach Street ..	23	...	4	3	2	...	1	2
Burrows Road ...	18	1	4	2	1	1	2	1
Bush Road ...	28	...	3	6	1	...	1	...
			privies					
Bryn Street ...	33	...	4	...	...	...	5	...
Bond Street ...	58	2	5	3	4	...	1	2
Balaclava Street ...	57	3	10	...	6	...	1	...
Bathurst Street ...	55	1	12	22	2	2	4	...
Bartley Terrace ...	25	..	3	...	...	...	1	...
Brunswick Street ...	68	3	4	4	1	4	...	...
Brook Street ...	20	...	4	3	...	...	1	2
Bridge Street ...	17	1	4	5	1	...	2	4
Burrows Block ...	11	2	3	1	1	3	3	1
Byng Street ...	22	...	9	6	...	...	2	...
Bevan's Row ...	9	1	...	...	...	4	4	...
Bennett Street ...	24	...	7	...	...	...	...	...
Crumlyn Street ...	41	...	8	7	3	3	9	1
Castle St., Morriston	111	...	...	...	...	1	...	...
Carmarthen road ...	42	11	19	14	6	1	13	...
Coopers Terrace ...	5	...	1	...	...	...	...	...
Crown Street ...	19	1	...	1	3	...	7	1
Cwm Street ...	10	..	4	2	1	1	3	3
Croft Street ...	23	7	6	8	9	1	5	...
Castle Graig ...	35	...	...	7	1	...	...	...
Charles Court ...	4	...	...	...	...	...	...	...
Charles Place ...	8	1	3	...	...	...	...	...
Colbourne Terrace ...	90	9	4	8	3	...	5	...
Charles Street ...	35	1	10	5	4	5	10	12
Dyfatty Street ...	47	4	10	12	4	...	2	4
Dyfatty Court ...	5	...	1	...	...	...	6	11
Delhi Street ...	43	3	9	2	3	1	1	...
Duffryn Terrace ...	10	1	...	1	...	1	...	...
Dillwyn St., Morriston	84	1	2	6	6	..	5	2
Danygraig Terrace ...	12	1	1	...	1	...	1	...
Dyfatty Place ...	17	3	6	4	5	...	4	...
Evans Ter, St. Thomas	10	...	...	...	...	1	...	...
Ebenezer Street ...	42	6	10	10	8	...	4	...
Eaton Road ...	36	...	2	3	1	...	...	...
East Place ...	5	...	...	...	...	...	...	...
French Row ...	4	1	3	1	2	...	...	...
Flint Mill Row ..	6	...	2	2	...	1	1	4
Freeman's Row ...	10	2	2	3	1	1	...	1
Foxhole Road ...	44	6	6	5	2	...	4	1
Fuller's Row ...	28	2	9	3	2	...	2	..
Francis Row ..	14	2	4	1	1	...	2	...
Fleet Street ...	110	4	21	8	10	4	5	4
Fairfield Terrace ..	3	...	2	...	1	...	...	1
Frances Street ...	6	...	1	...	...	2	1	...
Field Street ...	16	1	6	4	...	...	2	...

SYSTEMATIC HOUSE TO HOUSE INSPECTION—*Continued.*

NAME OF STREET.	No. of Houses Inspected.	Choked and defective drains	W.C. pans foul and appliances defective.	Defective Houses.	Waste of Water discovered.	Injurious and foul accumulations.	Dilapidated and foul yards.	Other Nuisances.
Farm Lane ...	14	1	1	6	...	...	1	...
Green Street ...	31	...	2	1	2	...	3	...
Grey Street ..	39	1	8	5	3	...	1	...
Garden Street ..	30	...	4	9	3	3	5	12
Grenfell Town ..	23	3	6	...	...	...	5	1
Gerald Street ..	23	...	1	1	1	...	1	...
Grove Street ..	15	...	2	1	...	...	2	2
Glanrafon Terrace ...	12	1	8	2	...	...	...	...
Gelli Street ..	25	3	3	1	1	11	1	...
Graig, Trewyddfa ...	11	...	...	...	1	...	2	...
Graig Road ..	68	...	54 privies	9	...	...	5	1
Golden Row ...	10	1	2	4	1	2	...	1
Gravog Street ..	36	7	7	2	3	4	1	...
Hoo Street ...	44	4	4	8	12	2	...	...
Inkerman Street ...	64	10	23	15	2	1	1	1
Jockey Street ..	41	2	8	8	...	...	...	4
Kilvey Road ...	17	3	10	1	...	1	1	...
Kensington Crescent	41	...	...	...	2	1	1	...
Lamberts Cottages ..	52	2	3	4	1	1	1	1
Llangyfelach Road, Morrison	15	1	2 pails	3	1	1	1	...
Lamb Row ...	10	3	1	5	2	...	...	...
Lyon Street ...	11	1	...	...	...	1	2	...
Little Madoc Street ...	17	1	12	11	4	2	4	15
Llewellyn Row, Fox- hole	4	...	...	...	...	...	...	...
Little Gam Street ...	10	...	...	...	1	...	...	...
Middleton Street ...	40	2	6	2	3	...	...	...
Mysydd Street ...	50	1	12	6	1	...	6	...
Morris Street ...	19	...	4	3	3	...	2	...
Market Street ...	38	1	3	2	...	2	1	1
Morfydd Street ...	13	1	...	3	3	...	2	...
Marles Terrace ...	6	1	1	1	...	...	1	...
Madoc Street ...	27	3	5	6	5	6	5	2
Marlborough Road ...	9	...	5	9	2	1	5	1
Mill Ter, Morrison ...	18	...	7	11	...	...	...	...
Mier Street ...	63	2	14	3	6	...	2	...
Matthew Street ...	64	13	18	14	7	...	7	...
Maltsters Row, Port Tennant	6	1	3	3	1	...	3	...
Morgan Ter., Port Tennant	6	...	1	...	1	1	...	1
Mill Street ...	6	1	2	...	...	1	...	2
Morris Lane ...	30	2	5	1	2	1	1	1
Mile End Row ...	5	1	2	1	1	...	...	...
Mariner Street ...	32	7	5	5	...	2	5	...
Midland Terrace ...	13	2	3	...	1	...	1	...
Morris St., Morrison.	32	2	...	3	...	...	2	...
Norfolk Street ...	72	2	6	6	2	2	1	2
New Street ...	13	...	...	6	1	...	1	...

SYSTEMATIC HOUSE TO HOUSE INSPECTION—*Continued.*

NAME OF STREET.	No. of Houses Inspected.	Choked and defective drains	W.C. pans foul and appliances defective.	Defective Houses.	Waste of Water.	Injurious and foul accumulations.	Dilapidated and foul yards.	Other Nuisances.
Nixon Terrace ...	27	...	...	3	...	...	1	...
Neath Rd., Morriston	85	...	8	15	1	...	2	2
Neath Rd., Plasmarl	141	5	30	29	32	...	12	1
Nantylffin Road ...	11	...	4 pails	...	...	...	...	...
Owens Row, Foxhole.	16	1	8	1	1	1	2	1
Osterly Street ...	24	...	4	...	...	...	...	...
Pleasant St., Mor'ston	11	..	...	1	...	...	...	...
Pleasant Row, Foxhole	9	2	1	1	...	1	...	...
Pentrepoth ...	30	...	...	5	1	...	...	1
Paxton Terrace ...	8	...	1	7	...	1	1	5
Port Tennant Road ...	160	5	23	17	12	17	14	4
Pottery Street ...	32	...	...	...	...	...	...	...
Park Ter., Plasmarl ...	14	...	4 privies	1	...	...	...	...
Plasmarl Terrace ...	14	...	5	11	...	...	2	...
Percy Street ...	33	...	...	10	...	3	4	15
Pleasant Street ...	4	...	1	...	1	...	...	...
Plough Road ...	19	...	5	...	...	...	...	...
Pentreguinea Road ...	86	4	12	11	2	2	4	...
Pegler Street ...	18	...	3	...	2	...	2	...
Pleasant View Terrace	15	4	4	4	1	...	...	...
Penvillia Terrace ...	9	...	1	3	2	...	4	...
Pillar Road ...	2	...	...	4	...	...	2	...
Pinkney Street ...	14	5	3	10	1	...	2	...
Richard Terrace ...	21	...	3	1	...	...	2	1
Robert St., Morriston	13	1	...	...	...	...	2	...
Rees Court ...	6	...	..	...	...	...	...	1
Rodney Street ...	161	12	40	38	20	11	17	9
Recorder Street ...	33	1	20	14	1	...	20	10
Swan Street ...	38	4	12	6	5	...	9	...
Smyrna Row ...	28	1	6	7	...	...	1	...
Sloane Street ...	28	1	8	6	2	2	5	8
Shepherd's Road ...	3	...	1	...	...	...	...	...
Sebastopol Street ...	63	2	12	8	2	5	...	...
Springfield Street ...	47	3	1 pail	2	2	8	...	...
St. Helen's Crescent...	21	...	...	3	1	...	...	1
Short Street ...	13	...	2	...	...	...	1	...
Spring Terrace ...	28	4	6	...	2	3	2	...
Taplow Terrace ...	18	2	9	1	2	...	4	1
Tontine Street ...	52	8	15	11	8	...	12	...
Thomas St, St. Thomas	18	2	3	3	1	...	2	...
Tawe Terrace ...	8	..	...	3	...	...	...	2
Trewyddfa Rd., Plasmarl	40	...	11 privies	11	...	...	...	14
Uplands Ter., Plasmarl	26	...	5	5	...	...	5	...
Upper Strand ...	12	1	2	3	1	...	1	3
Upton Terrace ...	21	2	2	...	2	...	...	...
Vale of Neath Row ...	4	...	...	4	...	1	1	...
Vincent Street ...	148	5	37	44	9	3	8	16
Vicarage Terrace ...	13	1	2	5	...	...	...	1
Vicarage Road ...	45	1	1	4	...	...	1	...

SYSTEMATIC HOUSE TO HOUSE INSPECTION—*Continued.*

NAME OF STREET.	No. of Houses Inspected.	Choked and defective drains	W.C. pans foul and appliances defective.	Defective Houses.	Waste of Water discovered.	Injurious and foul accumulations.	Dilapidated and foul yards.	Other Nuisances.
Willows Terrace ...	9	..	1	1	1	..	1	..
Well Street ...	22	4	15	15	1	2	5	10
Wern Terrace ...	54	8	20	8	1	12	2	1
Western Street ...	161	7	22	11	13	9	26	8
Washington Terrace	12	..	2	4	1	..	..	..
Western Terrace ...	5	..	..	..	..	..	..	..
Washington Terrace	7	..	2	..	..	..	..	..
Wychtree Street ...	77	1	3	7	8	2	1	0
William Street ...	6	..	1	..	..	..	..	..
Woodfield Street ...	121	3	7	17	6	3	8	3
Watkin Street ...	14	..	3	2	1	..	1	..
Ysgol Street ...	14	..	..	..	..	6	1	1

Total Number of Houses systematically inspected—**4965.**

Proceedings before Justices.

1. Jan. 14th.—H. R., refusing to abate nuisance. Withdrawn on payment of costs. Work completed.
2. Feb. 17th.—J. W., refusing to abate nuisance. Withdrawn on payment of costs. Work completed.
3. Feb. 24th.—A. R., refusing to abate nuisance. Withdrawn on payment of costs. Work completed.
4. March 9th.—M. J., refusing to abate nuisance. Withdrawn on payment of costs. Work completed.
5. March 12th.—Refusing to abate nuisance. Withdrawn on payment of costs. Work completed.
6. April 13th.—Milk 10 per cent. deficient in fat. Withdrawn ; warranty defence.
7. April 13th.—Milk 11 per cent. added water. Withdrawn ; warranty defence.
8. April 13th.—Milk 13 per cent. deficient in fat. Fined £5 including costs.
9. April 27th.—Skimmed milk 67 per cent. of ordinary milk, with 33 per cent. of added water. Fined £5 including costs.
10. April 28th.—Refusing to abate nuisance. Withdrawn on payment of costs. Work complied.
11. May 5th.—Refusing to abate nuisance. Withdrawn on payment of costs. Work complied.
12. June 4th.—Refusing to abate nuisance. Withdrawn on payment of costs. Work complied.
- 13.—June 22nd.—Rum $32\frac{3}{4}$ per cent. under proof. Fined £2 including costs.
14. July 6th.—Milk 10 per cent. added water. Fined £2 and costs.

15. July 13th.—Milk 10 per cent. deficient in fat. Fined £5 including costs.
16. July 13th.—Selling Milk 13 per cent. added water and 33 per cent. deficient in fat when skimmed milk was asked for. Defendant was given the benefit of a doubt, and the case was dismissed.
17. July 20th.—Refusing to abate a nuisance. Withdrawn on payment of costs. Work completed.
18. Sept. 21st.—Milk 9 per cent. added water, and 14 per cent. deficient in fat. Withdrawn; warranty defence.
19. Sept. 21st.—Milk 25 per cent. deficient in fat. Fined £2 including costs.
20. Oct. 26th.—Milk 8 per cent. deficient in fat. Fined £4 including costs.

ILEWELLYN DAVIES,

Chief Sanitary Inspector.



Swansea Education Authority.
MEDICAL INSPECTION OF SCHOOL CHILDREN.

FIRST ANNUAL REPORT

of the School Medical Officer for the Year ending
31st December, 1908,

BY

DAVID J. MORGAN,

M.A., M.D., B.C. (Cantab), D.P.H. (London), F.C.S.,

School Medical Officer, Medical Officer of Health. Medical
Superintendent of the Swansea Borough Fever Hospital.

(Printed by the Order of the Swansea Education Authority).

Swansea Education Committee.

Chairman.

Mr. Alderman R. MARTIN.

Vice=Chairman.

Mr. Councillor D. HARRIS.

His Worship the Mayor Mr. Coun-
cillor M. TUTTON.

Mr. Ald. HOWELL LEWIS.

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„ J. A. RAWLINGS.

„ H. G. SOLOMON.

„ D. WILLIAMS.

„ WM. WILLIAMS.

Mr. Coun. J. W. CADWALLADR.

„ G. H. COLWILL.

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„ DAVID DAVIES.

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„ W. H. MILES.

„ P. MOLYNEUX.

„ BENJ. THOMAS.

Miss M. E. BROCK.

Mrs. K. FREEMAN.

Medical Inspection of School Children Sub=Committee.

CHAIRMAN :—Mr. Alderman J. A. RAWLINGS.

The Mayor (Councillor M. TUTTON), Mr. Alderman R. MARTIN,
Alderman H. G. SOLOMON, Councillors J. W. CADWALLADR,
G. H. COLWILL, DAVID HARRIS and W. H. MILES,

REPORT OF SCHOOL MEDICAL OFFICER TO THE SWANSEA EDUCATION AUTHORITY.

GENTLEMEN,—

I have the honour to present to you my first Annual Report as School Medical Officer for the year 1908.

The report is made in accordance with the requirements of the Board of Education as set forth in Circular 596 (17th August, 1908). as follows:—

C.—*Annual Report.*

5. The Annual Report referred to in paragraph 13 (*d*) to (*h*) of Circular 576 should be made by the School Medical Officer to the Local Education Authority, who will send two copies of it to the Board of Education, with any observations which they may desire to submit, as soon as practicable after the expiration of the year to which it relates. It will be understood that Reports which are for the information of the Board of Education may well include statements of local circumstances and conditions which would be superfluous if they were intended only for the information of the Local Authority. The Annual Report should relate to the calendar year, and the first Annual Report should be made up to the 31st December, 1908. It is not the intention of the Board to prescribe in detail the form which this Report should take, or to require at present the adoption of particular methods of analysing and tabulating the facts on which it is based. However desirable it may be, on abstract or scientific grounds, to secure uniformity in these Reports, the Board feel that the attainment of this quality must be preceded by such an amount of practical experience as is sufficient to show what particulars can or cannot be included in tabular forms which, when framed, must be capable of application to all parts of the country and all varieties of circumstances.

In this connection I am to call the attention of the Authority to the passage headed “Medical Inspection of School Children,” on Page 3 of the Memorandum on Annual Reports issued by the Local Government Board, dated December 19th, 1907 (M. 152).

6. As regards the scope of the Report, however, the Board consider that it is desirable that it should deal with the whole subject of School Hygiene, and should cover as much as possible of the ground indicated under the following heads. It is recognised that these heads suggest a degree of comprehensiveness which in many, and indeed in most cases, will not immediately be attainable. The Board have, however, considered it desirable to treat the plan of the Annual Report in such detail as to furnish Local Education Authorities with a standard, by reference to which they may regulate their arrangements for collecting and digesting the information which the work of the next few years will place at their disposal.

(a) General review of the hygienic conditions prevalent in the Schools in the area of the Local Education Authority in respect of such matters as surroundings, ventilation, lighting, warming, equipment, and sanitation, including observations on the type and condition of sanitary conveniences and lavatories, water supply for washing and drinking purposes, the cleanliness of schoolrooms and cloakrooms, arrangements for drying children's cloaks and boots, and the relation of the general arrangements of the School to the health of the children.

(b) General description of the arrangements which have been made for the co-relation of the School Medical Service with the Public Health Service and for the organisation and supervision of medical inspection, and an account of the methods of inspection adopted, including—

- (i) A statement of the extent (if any) to which the Board's Schedule of Medical Inspection has not been followed and the reasons for such departure;
- (ii) A statement showing the assistance given to the School Medical Officer and his assistants by nurses, managers of schools, teachers, attendance officers or other persons;
- (iii) A statement showing the methods adopted for securing the presence of parents at the inspection and their co-operation in the subsequent treatment of defects, together with a review of the effect of such methods;
- (iv) The extent to which disturbance of school arrangements was involved by the inspection. (Art. 43 (b) and 44 (h) of Code of 1908).

(c) General statement of the extent and scope of the medical inspection carried out during the year, including—

- (i) The number of visits paid to Schools and Departments ;
- (ii) The principle on which children have been selected for inspection ; (at entrance, before leaving, by selection according to ages or otherwise) ;
- (iii) The number of children inspected (classified for age at date of inspection and for sex) ;
- (iv) The number of children referred for subsequent or further examination ;
- (v) The number of children in respect of whom directions were given for treatment of defects, including a classified statement of such defects ;
- (vi) The average time per head occupied by inspection.

(d) General review of the facts disclosed by medical inspection, under the headings contained in the Schedule to Circular 582, including tables showing the height and weight of children inspected (according to age at date of inspection and sex).

(e) General review of the relation of home circumstances and social and industrial conditions to the health and physical condition of the children inspected, so far as facts bearing on this point have come under notice.

(f) Review of the methods employed or available for the treatment of defects, such as defective eyesight, carious teeth, nasal obstruction or adenoids, tonsilitis, discharging ears, pediculosis, ringworm, and other skin diseases, including an account of the action of School nurses in obtaining or assisting in the treatment of such defects.

(g) Review of action taken to detect and prevent the spread of infectious diseases, including reference to action taken under Articles 45 (b), 53 (b) and 57 of the Code of 1908.

(h) Review of the methods adopted and the adequacy of such methods for dealing with blind, deaf, mentally or physically defective and epileptic children under the Acts of 1893 and 1899.

(i) Review of—

- (i) The methods and results of instruction in personal hygiene and temperance in the Public Elementary Schools in the area;
- (ii) The methods and results of physical or breathing exercises in the Schools;
- (iii) Arrangements for open air schools, school camps, &c., under Article 44 (*g*) of the Code of 1908.

(j) Account of miscellaneous work, such as the examination of Scholarship candidates, Pupil-Teachers, or teachers of any grade.

Two complete sets of any forms used by the Local Education Authority in connection with the School Medical Service should be sent to the Board together with the Report.

As you are all well aware, a new, and highly important feature, has recently been introduced into the school life of the children attending the Public Elementary Schools of this country. Section 13 (*b*) of the Education (Administrative Provisions) Act, 1907, which became operative on January 1st, 1908, imposes upon Local Education Authorities the duty of providing for the Medical Inspection, at certain times, of children attending Public Elementary Schools. The Section referred to is as follows:—

13.—(1) The powers and duties of a Local Education Authority under Part III. of the Education Act, 1902, shall include:—

(*b*) The duty to provide for the medical inspection of children immediately before, or at the time of, or as soon as possible after, their admission to a Public Elementary School, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in Public Elementary Schools.

Provided that in any exercise of powers under this Section, the Local Education Authority may encourage and assist the establishment or continuance of voluntary agencies, and associate with itself representatives of voluntary associations for the purpose.

The general principles which should guide the Authority in carrying out this duty were laid down in the Memorandum (Circular 576) of the Board of Education on the Medical Inspection of Children in Public Elementary Schools, and also in a Circular (No. 582) to Local Education Authorities with accompanying Schedule of Medical Inspection.

In common with many of the Local Education Authorities of large towns, the Local Education Authority had anticipated the new Act, and had already taken some steps in promotion of school hygiene. Since 1897, there have been two Medical Officers in connection with the Local Education Authority, viz., Dr. Rhys Davies and Dr. E. Rice Morgan.

These two Medical Officers have examined and reported (up to July, 1904, to the Swansea School Board and since that date to the Swansea Education Committee) upon the sanitary condition of the schools in the district, and have inspected children selected by the teachers as being in some way defective or unwell.

The duty cast upon the Education Authority by the Act of 1907 is simply an extension and development of the methods already adopted by your Authority. The Education Board states that “for
“some years past evidence has been accumulating that there exists
“in certain classes of the English people a somewhat high degree
“of physical unfitness which calls for amelioration, and, as far as
“possible, for prevention. The Board wishes at the outset to
“emphasise that this new legislation aims not merely at a physical
“or anthropometric survey, or at a record of defects disclosed by
“medical inspection, but the physical improvement, and as a natural
“corollary, the mental and moral improvement, of coming genera-
“tions.

“Hitherto, the general routine, where medical inspection has
“been practised, has been for a medical man to visit schools at
“intervals, make a sanitary survey of the buildings, and examine
“more or less thoroughly children presented to, or selected by him.

“The present Act is not intended to supersede the powers which
“have long been exercised by Sanitary Authorities under various
“Public Health Acts, but is meant to serve rather as an amplification
“and a natural development of previous legislation, and seeks to
“secure ultimately for every child, normal or defective, conditions

“of life compatible with that full and effective development of its
 “organic functions, its special senses, and its mental powers which
 “constitute a true education.”

In the first place the Board views the entire subject of school hygiene as an integral factor in the health of the nation, and states
 “that the application of this principle requires that the work of
 “medical inspection should be carried out under the direct super-
 “vision of the Medical Officer of Health in order to avoid the
 “possibility and inconvenience of a dual jurisdiction in matters con-
 “nected with the health of scholars and the sanitary condition of
 “schools, the Board being convinced that this is the only practical
 “method, and that which is most likely to promote economy,
 “harmony, and efficiency,” and, further, that the “Local Education
 “Authority should instruct the Medical Officer of Health to advise
 “the Education Committee, and should make him responsible for
 “new work and for the supervision of such medical assistance as
 “is needed to carry it out. Where appointments of school medical
 “officers already exist the Board do not suggest that they should
 “be disturbed, provided always that the officers are competent and
 “sufficient for the new duties, and that the arrangements for super-
 “vision by the Medical Officer of Health are satisfactory.”

The Memorandum next deals with Subsidiary Agencies, and states that “the work of medical inspection cannot be properly
 “accomplished by medical men without assistance. The teacher,
 “the school nurse, the health visitor, and the parents or guardians
 “of the child must heartily co-operate with the School Medical
 “Officer. In whatever way the system be organised, its success will
 “depend immediately and ultimately upon the cordial sympathy
 “and assistance of the teachers, and that experience shows that
 “when the teachers understand the necessities and opportunities of
 “the situation they are both willing and able to take their share.
 “It is essential, however, that the teacher, school nurse, or health
 “visitor assisting in the administration of this Act should act strictly
 “under supervision of the Medical Authority.”

In reference to the parent, the Memorandum points out that
 “one of the objects of the new legislation is to stimulate a sense of
 “duty in matters affecting health in the homes of the people,” to
 “enlist the best services and interests of the parents, and to educate
 “their sense of responsibility for the personal hygiene of their
 “children.”

The character and degree of Medical Inspection is defined as follows:—

1. Medical Inspection of school children at regular intervals.
2. Oversight of the sanitation of school buildings.
3. The prevention, as far as may be, of the spread of infectious and contagious diseases, including skin diseases; and
4. The systematic supervision of the personal and home life of the child.

The Memorandum significantly states:—“The home is the point at which health must be controlled ultimately.”

Paragraph 10 of the Memorandum states: “The directions given “in this circular as to the degree and frequency of inspection refer “only to the *minimum* medical inspection, the effectiveness of which “will in future be one of the elements to be considered in determining “the efficiency of each school as a grant-aided school.”

In Paragraph 12 the Board states “That *not less than* three “inspections during the school life of the child will be necessary “to secure the results desired. The first, at the time of, or as soon “as possible after, admission to the school; the second at or about “the third year (say the seventh year of age); and the third at or “about the sixth year of school life (say the tenth year of age). A “further inspection immediately before the departure of the child “into working life would be desirable where practicable, and in “some areas it may be best for this to take the place of the third “inspection.”

Paragraph 13 states that “The inspection should be conducted “in school hours and on school premises; that ‘records must be kept “at the schools,’ and further that ‘every school medical officer “should made an annual report to the Local Education Authority “on the schools and children under his superintendence.’”

Paragraph 14 states that “the aim of the Act is practical, and “it is important that Local Education Authorities should keep in “view the desirability of ultimately formulating schemes for the “amelioration of the evils revealed by medical inspection, including, “in centres where it appears desirable, the establishment of “school surgeries or clinics, for further medical examination, or “the specialised treatment of ringworm, dental caries, or diseases

“of the eye, ear and skin”; but the Board acknowledges this to be a matter for future consideration.

The next paragraph, however, states that “in the meantime “the Local Authorities should take measures without delay for “dealing, through such agencies, as are conveniently available, with “what are commonly, though in a sense erroneously, regarded as “minor ailments, such as ringworm, verminous heads and bodies, “daily brushing and cleansing of teeth, provision of baths where “necessary for cleansing the bodies of children, and as a humanising “influence in the promotion of personal hygiene and self-respect.”

Paragraph 16 deals with—

(1) The control of infectious diseases.

(2) The modification of the teaching and work of the school and its adjustment to the physical capacity of the scholars as a form of treatment which in the end will bear much fruit; such as the prevention of eye strain by the removal, as the result of medical inspection, of unsatisfactory conditions of school life, which are a common cause of fatigue and injured eyesight.

Paragraph 17 deals with the existing powers of the Local Education Authorities as to treatment under the Blind and Deaf Act, 1893; the Defective and Epileptic Act, 1899, and the Provision of Meals Act, 1906.

LOCAL ADMINISTRATION OF THE ACT.

Having defined the scope of the recommendations and requirements of the Board of Education, it is now necessary to consider the question of the local administration of the 1907 Act.

At present there are in the Swansea Public Elementary Schools, 21,000 scholars; about 3,000 scholars enter these schools annually, and about the same number leave school during the school year. The Board of Education requires *not less than three* inspections during the school life of the child, and in the first year (1908), would have been satisfied with the inspection of children newly admitted and those leaving school, that is to say, with the examination of 6,000 children. But in Swansea, as you know, *all* the children in the schools (21,000) are being examined during this year (July 31st, 1908, to August 1st, 1909). This is being done on the initiative of Mr. Alder-

man Richard Martin, the chairman of the Swansea Education Committee—who very wisely pointed out that if we only examined the 6,000 children entering and leaving the school during this year, a large number of children would have to wait for one, two, or even three years before they would be examined, and he therefore recommended that all the children in the schools should be examined right away, so that the defects might be discovered at once, and the children given the opportunity to have those defects remedied, instead of having to wait, possibly, for three years, during which time the defects would not have been discovered, and very great harm would have been done to the health of the child. I cannot too strongly commend the action of Mr. Martin in this matter, for the extra cost involved is far more than compensated for by the benefit derived by the children themselves. After this year, we shall have to examine annually those children entering and leaving school, and those who reach the ages of 7 and 10. Altogether, this will mean the examination of 12,000 children annually, or about $\frac{4}{7}$ ths of the children in each school.

Now, in order to examine the 21,000 children in the schools by the 1st of August, 1909, the Education Committee appointed the following 20 local Medical Practitioners to make the necessary examinations:—Drs. Ernest Brice, John Evans, Rhys Davies, J. D. Davies, D. R. Edwards, A. Hanson, C. H. Hunter, J. Lewis Jones, C. Kemp, F. Knight, E. Rice Morgan, E. Morgan, M. O. Sullivan, T. M. J. Powell, H. E. Rawlings, Mary T. Ritchings, Edgar Reid, H. M. Soden, Jabez Thomas, and H. H. Thomas. Though there are many objections which could be raised against the employment of a large number of part time medical inspectors, still, this was the only practical method which could be adopted for the first year. All the inspectors report that they have received very great assistance from the teachers, and I should here like to thank the teachers for the splendid manner in which they have assisted in the work, and for the very keen interest displayed by many of them in the physical welfare of the children under their care.

CARD OF MEDICAL INSPECTION.

The following is a copy of the card used for the medical inspection. The Cards are of 3 colours, blue for boys, white for girls, and a pink card for special cases,

School No. (as given by Board of Education).	Swansea Borough Council—Education Committee.	Child No. (as given on School register).
Name of School	MEDICAL INSPECTION.	Date of Birth
Previous School attended	Name (surname first) Address	Date of admission to School

GENERAL OBSERVATIONS.

(a) Medical Officer

(b) Teacher

PERSONAL HISTORY.

(a) Previous illnesses of child (before admission).

Measles Scarlet Fever

Whooping Cough Diphtheria

Small Pox

Chickenpox Other illnesses

(b) Family Medical History (if exceptional)

DIRECTIONS TO PARENTS OR TEACHERS

	I	II	III	IV
1 Date of Inspection				
2 Standard and Regularity of Attendance				
3 Age of Child				
4 Clothing and Footgear				
5 Height				
6 Weight				
6a Chest girth				
7 Nutrition				
8 Cleanliness and condition of Skin				
Head				
Body				
8a Vaccination Marks				
9 Teeth				
10 Nose and Throat				
Tonsils				
Adenoids				
Submax. and Cervical Glands				
11 External Eye Disease				
12 Vision				
	R.			
	L.			
12a Colour Vision				
13 Ear Disease				
14 Hearing				
15 Speech				
16 Mental Condition				
17 Heart and Circulation				
18 Lungs				
19 Nervous system				
20 Tuberculosis				
21 Rickets				
22 Deformities,				
Spinal Disease, etc.				
23 Infectious or contagious Disease				
24. Other Disease or defect				
Medical Officer's Initials.				

The Columns 1, 2, 3, and 4 are for the four inspections which are to be made during the school life of each child, viz. :—On entering; at 7 years of age; at 10 years of age; and on leaving the school.

In addition to the items suggested by the Board of Education, I have included the following:—

- (6a) Chest Girth.
- (8a) Vaccination Marks.
- (12a) Colour Vision.

In the event of an outbreak of Small Pox in the town, the record of cases of children who have not been vaccinated will prove of valuable assistance in the prevention of the disease.

I considered it necessary to test the Colour Vision, as cases have been known where children have been taught to paint in water colours, where such children have not been able to distinguish colours such as red and green.

CHILDREN WEARING UNSUITABLE GLASSES.

In addition to the above, I have issued instructions that in those cases where children are found to be wearing glasses, careful examination should be made to see whether such glasses are suitable in every case.

This is a very important feature, for we have found several instances in the schools where unsuitable glasses are being worn by children.

In certain cases it will be readily realised that unsuitable glasses may do more injury to the children's eyes than the absence of glasses altogether.

PRESENCE OF PARENTS AT MEDICAL INSPECTION.

In order to obtain the co-operation of the Parents the following notice is sent them :—

SWANSEA BOROUGH COUNCIL.—EDUCATION COMMITTEE.

MEDICAL INSPECTION, under Section 13 of the Education
(Ad. Prov.) Act, 1907.

NOTICE TO PARENTS.—Date of Medical Inspection.

	School.	
Date		19

Dear Sir (or Madam),

I beg to inform you that the Medical Officer appointed under the Regulations of the Board of Education will attend at this School on _____ at _____ for the purpose of medically examining the children.

Will you be good enough to see that your child is present on that date. It would be an advantage if you could make it convenient to be present at such examination.

Yours faithfully,

Head Teacher.

If the parents are unable to attend they are asked to fill in the following form :—

SWANSEA BOROUGH COUNCIL.—EDUCATION COMMITTEE.

Medical Inspection of School Children.

If you are unable to attend at the Inspection of your Child, kindly fill in the answers to the following questions :—

1.—Has your child _____ ever had any of these illnesses ? :—

Measles,	Whooping Cough,	Small Pox,
Scarlet Fever,	Diphtheria,	Chicken Pox,

If so, kindly place the word “ Yes ” after the disease.

2.—What other illness has it had ?

3.—Is there Consumption in the family ?

Signed,

This Form must be returned to the Teacher of the Class.

The work of Medical Inspection of the children will be of no value at all unless steps are taken to see that children found defective are given every opportunity to have the defects remedied, and to grow up into strong and healthy men and women. For this purpose forms are being sent to the parents informing them that their child is suffering from some particular defect, and urging them

to take their child to their usual family doctor. A reply form is attached, and the parents are asked to let me know what the doctor says about the case. The forms are as follows:—

Swansea Borough Council.—Education Committee.

MEDICAL INSPECTION—SCHOOL CHILDREN.

(Under Sec. 13 of the Education Act, 1907.)

To _____ Date _____ 19____
Dear Sir (or Madam),

I beg to inform you that _____ has been examined by the School Medical Officer, and that in his opinion he (she) should be seen by your Medical Adviser in order to obtain advice concerning:—

I shall be glad if you will fill in the attached form, and return the same to the **Head Teacher of the School.**

Yours truly,

DAVID J. MORGAN,
Medical Officer of Health.

Swansea Borough Council—Education Committee.

MEDICAL INSPECTION SCHOOL CHILDREN.

REPLY FORM.

Name of Child _____

Address _____

School _____

To the Medical Officer of Health, Swansea.

Dear Sir, I have taken my Child to Dr. _____

and he said _____

Date _____

Please sign your Name here.

At the same time the following letter is sent to the usual Medical Adviser:—

SWANSEA BOROUGH COUNCIL.—Education Committee.

MEDICAL INSPECTION, under Section 13 of the Education (Ad. Prov.) Act, 1907.

LETTER TO MEDICAL ADVISER.

Dear Sir (or Madam), _____ Date _____ 19____

I beg to inform you that _____ of _____ School, residing at _____ has been medically examined by the School Medical Officer, and that he (she) has I have advised the parents to seek your advice, and to state on a Reply Form whether they have taken the child to see you, so that I may know that the child is receiving medical treatment.

Yours truly,

DAVID J. MORGAN,
Medical Officer of Health

To _____

In order to make the examinations as uniform as possible, certain standards were fixed by me for some of the items mentioned in the Schedule of Medical Inspection. They were as follows:—

STANDARDS ADOPTED.

CLOTHING AND FOOTGEAR.—

Good.	When suitable in quality and quantity for the time of the year and in good repair.
Average.	Ditto, and in fair repair.
Bad.	Unsuitable in quality, dirty, and ragged with holes.

NUTRITION.—

Good and Normal.	Children in whom the flesh is of good colour and firm, the limbs well rounded, bones not prominent.
Below Normal.	Ribs somewhat prominent and intercostal spaces sunken.
Bad.	Body wasted and bones very prominent, flesh soft; also anæmia.

TEETH.—

Good.	With not more than 2 carious teeth altogether.
Average.	With not more than 5 teeth altogether decayed.
Bad.	If total number of carious teeth exceeds 5.

VISION.

Snellen's test types to be read at a distance of 20 feet.

In most cases $\frac{6}{6}$ and $\frac{6}{9}$ were taken as Normal, but in one school (Dyfatty) $\frac{6}{12}$ was also included as Normal owing to the lighting of the room not being up to the necessary standard.

HEARING.—

In this case it was impossible to adopt an uniform standard for all schools as the external noises in each school vary considerably and have an important bearing upon the distance at which the watch could be heard ticking.

Some schools are situated in a very noisy district, and consequently a standard had to be fixed for each school separately. In an ordinary quiet school a watch should be heard ticking when placed at a distance of 5 feet from each ear.

A test was first made by the Medical Inspector of each school to find out the greatest distance at which a watch could be heard ticking by a person with normal hearing. This standard was then adopted as normal for the particular school.

The standards adopted in each school are shown in the table on Page 127.

It will be seen that in the case of Dyfatty Girls' School, the standard adopted is as low as 1 foot owing to external noises.

In the following schools examinations were not commenced up to 31st December, 1908, but are now (1909) being carried on in all Departments:—Cwm, Infants; Brynhyfryd, Infants; Christ Church, Infants; St. Helen's, Infants; York Place, Mixed and Infants; St. Iltyd's, Mixed and Infants; St. Joseph's, Infants; Dyfatty, Infants; Manselton, Infants; Parochial, Mixed and Infants; Pentrepoth, Infants; St. David's, Mixed and Infants; Terrace Road, Infants; St. Thomas, Boys,

For the most part the replies obtained are very satisfactory, and we know that the child is receiving every medical attention, but on the other hand, a few of the replies received are quite the reverse of this, and prove to us that the parents do not in all cases accept their responsibilities, and neglect their children in a manner which is punishable by law.

At Eccles, near Manchester, a parent, who neglected to have his child supplied with glasses for defective eyesight, was prosecuted under Section 1 of the Prevention of Cruelty to Children Act of 1904,

and was fined 20s. and costs. Under the Children's Act of 1908, which comes into force on April 1st, 1909, we are given ample powers for dealing with parents who neglect to provide medical aid for their children, for under Section 12 of that Act we find the following:—

“12. *Punishment for Cruelty to Children and Young Persons.*—

(1) If any person over the age of sixteen years, who has the custody, charge, or care of any child or young person, wilfully assaults, ill-treats, *neglects*, abandons, or exposes such child or young person, or causes or procures such child or young person to be assaulted, ill-treated, neglected, abandoned, or exposed, *in a manner likely to cause such child or young person unnecessary suffering or injury to his health* (including injury to or loss of sight, or hearing, or limb, or organ of the body, and any mental derangement), that person shall be guilty of a misdemeanour, and shall be liable—

(a) on conviction on indictment, to a fine not exceeding one hundred pounds, or alternatively, or in default of payment of such fine, or in addition thereto, to imprisonment with or without hard labour, for any term not exceeding two years; and

(b) on summary conviction to a fine not exceeding twenty-five pounds, or alternatively, or in default of payment of such fine, or in addition thereto, to imprisonment, with or without hard labour, for any term not exceeding six months;

and for the purposes of this section a parent or other person legally liable to maintain a child or young person *shall be deemed to have neglected him in a manner likely to cause injury to his health if he fails to provide adequate food, clothing medical aid, or lodging for the child or young person, or if, being unable otherwise to provide such food, clothing, medical aid or lodging, he fails to take steps to procure the same to be provided under the Acts relating to the relief of the poor.*

“(2) A person may be convicted of an offence under this Section, either on indictment or by a court of summary jurisdiction, notwithstanding that actual suffering or injury to health, or the likelihood of such suffering or injury to health, was obviated by the action of another person.

“(3) A person may be convicted of an offence under this Section, either on indictment or by a court of summary jurisdiction, notwithstanding the death of the child or young person in respect of whom the offence is committed.”

We must endeavour to carry out the work of medical inspection of school children, so as not to throw the burden of providing medical attention upon the ratepayers; and every person who can possibly afford to pay must be made to do so. Of course some parents may be too poor to pay for medical treatment, but these are expected to claim the use of infirmaries under the control of Boards of Guardians, or of Local Charitable Institutions.

Nowadays there is no reason why every child should not receive adequate medical advice and treatment. One of the objects of the medical inspection of school children, as was mentioned before, is to stimulate a sense of duty in matters affecting health in the homes of the people, to enlist the best services and interests of the parents, and to educate their sense of responsibility for the personal hygiene of their children. The home is the point at which health must be controlled ultimately.

Another Section of the Children's Act, 1908 (Section 122) gives the Local Education Authority power to examine the person and clothing of any child, and, if found verminous, or in a foul or filthy condition, those in charge of the child can be called upon to cleanse properly the person and clothing of the child within 24 hours after receipt of notice. If the custodians of the child fail to carry this out, then the Local Education Authority have the power to seize the child, *and clean it*. If the child, having been *once* cleansed in this manner by the Local Education Authority, is allowed to again become verminous or dirty, the parent, guardians, or custodians of the child shall be liable to a fine not exceeding 10s.

Judging by the number of dirty and verminous children now in the schools, it would probably cost the Local Authority more to clean these children than the whole of the present cost of medical inspection. But I hope I shall never have to advise the Local Education Authority to undertake the cleansing of verminous children. This should be undertaken by the parents, and the parents must be made to accept their natural responsibilities to carry out *in the home* those duties which naturally appertain to the home life of the child.

The following table indicates the schools where the examinations were made up to the 31st December, 1908; the number of parents who attended the examination of their children, the number of cases where parents refused to allow their children to be examined, the number of children examined up to the 31st December, 1908, the average time occupied in the examination of each child, and the number of visits made by the Medical Inspectors to each school.

School.	Dept.	Medical Inspector.	Vision Standard.	Hearing Standard.	No. of parents who attended Examination	No. refused Examination	No. Exam. up to 31st Dec.	Average time per Child in minutes	No. of visits by Inspector
Brynhyfryd	Boys	H. H. Thomas	6/9	1½ ft.	145		448	3.28	13
"	Girls				239		363	3.91	19
Brynmill ...	Boys	D. R. Edwards	6/9	5 ft.	24		229	7.05	23
"	Girls				40	1	222	7.56	20
"	Inf'ts				74		157	5.82	14
Cwmbwrla ...	Mixed	E. Morgan ...	6/9	1½ ft.	28	1	126	7.85	9
"	Inf'ts				135	1	162	6.11	9
Cwm ...	Mixed	J. Lewis Jones	6/9	3 ft.	5		139	13.70	16
Danygraig ...	Boys	C. H. Hunter	6/9	4 ft.	187		411	6.74	19
"	Girls				175		366	6.25	23
"	Inf'ts				130		311	7.65	23
Dyfatty ...	Boys	John Evans...	6/12	1 ft.	0		457	5.52	18
"	Girls				1		405	5.16	13
Graig ..	Inf'ts	E. R. Morgan	6/9	5 ft.	68		274	3.39	13
Hafod ...	Boys	T. M. J. Powell	6/9	5 ft.	40		462	4.28	30
"	Girls				109		424	4.28	15
"	Inf'ts				159		346	2.16	9
Manselton ...	Boys	J. D. Davies...	6/9	3 ft.	205		411	8.00	43
"	Girls				195	3	382	4.16	17
Morryston ...	Boys	E. R. Morgan	6/9	w'sper	12		376	5.12	22
"	Girls			test	15		323	6.13	19
"	Inf'ts				5		82	5.42	4
Oxford St. ...	Boys	Jabez Thomas	6/9	3 ft.	93		411	7.79	26
"	Girls			4 ft.	103		335	6.89	17
"	Inf'ts			3 ft.	96		220	3.95	15
Pentrech'yth	"	M. O'Sullivan	6/9	5 ft.	44	3	111	6.25	5
Pentrepoth	Boys	C. Kemp ...	6/9	5 ft.	5		359	8.03	26
"	Girls				0		237	9.83	18
Plasmarl ...	Boys	E. Brice ...	6/9	4 ft.	119		388	3.97	14
"	Girls				263	1	368	5.86	19
"	Inf'ts				78		107	7.24	15
Rutland St.	Boys	H. E. Rawlings	6/9	2 ft.	17		269	5.76	17
"	Girls				93	3	228	6.18	11
"	Inf'ts				107	5	232	4.11	10
St. Thomas	Girls	F. Knight ...	6/9	3 ft.	6		43	7.55	2
"	Inf'ts				77	5	158	6.74	13
St. Thomas (C. of E.)	"	M. O'Sullivan	6/9	5 ft.	108	3	172	5.98	8
St. Helen's...	Boys	Rhys Davies	6/9	5 ft.	97		431	4.74	16
"	Girls				30		426	3.80	14
St. Joseph's	Boys	E. Reid ...	6/9	2 ft.	92	2	295	5.13	12
"	Girls				57		227	4.54	12
Terrace Rd.	Boys	A. Hanson ...	6/9	spec'al	242	1	499	7.06	28
"	Girls	M. T. Ritchings	6/9	5 ft.	250	1	499	5.14	20
Waun Wen	Boys	M. O'Sullivan	6/9	3 ft.	62		231	8.74	21
"	Girls				120		339	5.04	12
"	Inf'ts				174		293	5.37	13
Total ...					4324	34	13754	5.7	755

From the above table it will be seen that of 13,754 children examined, in 4,324 instances the parents attended the examination.

In 34 instances parents refused to allow their children to be examined.

THE RESULTS OF THE MEDICAL INSPECTION.

The number of children suffering from any one defect varies to an enormous extent in the different schools. This is so very marked in some cases, that, although I had fixed certain definite standards for the different items on the card of inspection so as to make the results as uniform as possible, I am bound to come to the conclusion that this variation is due for the most part to the fact that we have 20 different medical inspectors doing the work. Had one man examined all the children this variation would probably have disappeared to a very great extent.

The AVERAGE TIME taken by an inspector to examine a child varies from 2.16 to 13.7 minutes. Some inspectors are quicker at the work than others, and perhaps receive greater assistance from the teachers, but I do not think that that explanation alone will account for the variation mentioned above.

It would naturally have been thought that the NUTRITION of the children derived from the poorest parts of the town would have been found to be *inferior* to that of the children of the middle classes. But what we actually find is this, that although the poorer class children are more dirty than the middle class, yet they are far better developed physically than the others. Their bodies are better covered with flesh, their flesh is much firmer, they are more muscular, they are far less anæmic, and they do not exhibit that neurotic or nervous tendency which is so often a characteristic result of what is known to-day (though oftentimes erroneously) as Civilisation. One medical inspector, for whose opinion I have the highest respect, and who examined one of our better class and one of our lower class schools, told me that this was a very marked feature, and many other inspectors have commented upon the splendid physique of many of the children drawn from the poorest parts of the town. This certainly should make us pause and consider seriously what are the conditions prevailing among the middle classes which tend to make them physically inferior to the lower classes. I think the answer is given, when we say that with the lower classes Nature

is allowed to have more of her own way than with the middle classes. The middle classes have to keep up "appearances," and this often means a lack of nourishing food. I am reminded of what Wordsworth said—

"Come forth into the light of things,
Let Nature be your Teacher."

A large number of children have VERMINOUS HEADS. Girls, of course, are the chief offenders, for with them the hair is worn long, and requires a considerable amount of attention in order to keep it clean. Often the hair is beautifully curled and appears quite clean on the surface. But on lifting up the curls, and examining the hair near the roots in the scalp, one finds that whole armies of undesirable aliens have invaded the country and established themselves firmly in the land of their adoption. In one school, out of 152 girls examined only 8 were found to have clean heads; practically 95 per cent. therefore had verminous heads.

Where careful examinations have been made, a much larger number of children have defective eyesight (13.2 to 14 per cent.) than was anticipated. This is a very important point, and teachers have to be reminded that many children who are in the habit of copying from their neighbours do not do so from what are often thought to be bad motives, but because their eyesight or their hearing is defective, and they are not able to see the blackboard or to hear what has been said to them. I should like the teachers (now that they are familiar with the simple tests used for eyes and ears) to examine carefully all children who copy, or who appear inattentive, and see how many of them have defective hearing or eyesight. I shall be very glad if they will let me know the results of their examinations in these cases. Now many children have been wearing glasses where glasses were not needed at all, and others have been WEARING UNSUITABLE GLASSES which rendered their eyesight still more defective than it really was. Of the 13,754 children examined, 98 were found to be wearing unsuitable glasses—a percentage of 0.71. And I advised the medical inspectors to show the teachers how to examine the eyes by means of Snellen's Test Types, because I wanted them to be in a position to test the eyes at any time should they have occasion to suspect defective vision. I need hardly say that one of the commonest causes of continual headaches is some defect of vision, and such headaches disappear at once when suitable glasses are used.

In a few cases where the parents were too poor to pay, glasses were supplied by the Local Education Authority.

A number of children (1.1 per cent.) were found to be COLOUR BLIND. This item was not one of those scheduled by the Board of Education, but I had it included, as I have previously stated, because I had heard that some children were being taught painting, who were not able to properly distinguish between such colours as red and green.

As regards the TEETH, it will be noticed that the standards fixed by me were as follows:—

GOOD.—When the child had not more than 2 decayed teeth.

AVERAGE.—When there were not more than 5 decayed teeth.

BAD.—When the number of decayed teeth exceeded 5.

For a child to have 5 decayed teeth appears to be quite a common thing nowadays. The present generation suffers severely from bad teeth, but Swansea does not appear to be any worse off in this respect than other towns. My own opinion is, that bad teeth are due to the changes which our food supply has undergone during the last few centuries. The general public, and even many members of the Medical Profession, have no conception of the extent to which the common articles of food, such as milk, butter, and preserved meats, are drugged with preservatives which are so injurious to health. What with tinned, preserved, and concocted foods, we really don't know what we are eating; and it is only in the country where people do not herd together that we can obtain that plain, nourishing, and wholesome food which is so good for us all. Dr. Elliot Smith, Professor of Anatomy in Egypt, has been examining the skulls and teeth of men who lived in Egypt 5,000 years ago in the time of the Pyramid Builders. He found that decayed teeth were as common in those days amongst the adult aristocracy of Egypt, as it is in Europe to-day, although it was rare in adults of lower social status, and was almost unknown in children. The higher living of the aristocracy of those days accounted for this.

I am not one of those who believe that the use of the tooth brush will solve the problem. It will help to keep the teeth clean, but this alone will not prevent decayed teeth, unless at the same time a very great alteration is made in our food supply in the direction of simplicity and wholesomeness; but this, I fear, will become more and more impossible as towns increase in size.

The test for CLEANLINESS and CLOTHING are not altogether reliable; for the parents are warned of the coming examination, and the child is, as a rule, bathed for the occasion, and is sent to school on the day of inspection in its best clothes.

Dr. O'Sullivan, commenting upon the clothing and footgear of the boys in the Waunwen School, states that a few had tattered clothes, and were without boots or stockings. The bad clothing and bare feet were not necessarily accompanied by ill-health or malnutrition, as some of these children were among the sturdiest in the school.

Dr. Rice Morgan calls attention to the loss of sleep in young children, who are often allowed to be out playing in the streets up to 10 o'clock at night. Further, some of the older children suffer from excessive employment out of school hours. In many cases boys have to get up early in the mornings, and, after breakfast, often go to school in a sleepy and tired condition.

Dr. Edgar Reid reports that he had successfully removed at the Swansea Hospital a large sarcomatous tumour of the kidney, which he had discovered in a child of 6 years, and which occupied at least one-half of the abdomen. The parents were quite unaware of its existence, until it was pointed out to them by the Medical Inspector.

Dr. John Davies reports that he was rather surprised at the number of children suffering from affections of the heart, and that the inspection should be useful in directing the parents of these children in choosing occupations for them which will not require laborious work.

Dr. John Evans informed me that amongst the bigger boys in the Dyfatty School he found seven who suffered from *Tobacco Heart*. It is to be hoped that the Children's Act of 1908 will have an appreciable effect in diminishing smoking among boys under 16.

In one case of a boy, attending St. Joseph's School, suffering from Rupture, the parents refused to have the case properly treated in spite of repeated warnings. The N.S.P.C.C. took the case in hand, and eventually the boy was successfully operated upon, by Dr. Edgar Reid, at the Swansea Hospital.

I am glad to be able to record that in practically every case where a defect has been found, the child has been taken to a medical

man, and the defect has been attended to, and, where possible, remedied.

Owing to the non-arrival of the height and weight machines, examinations under these headings could not be carried out before December 31st, 1908.

Lectures and Demonstrations have been given at some of the schools to parents of school children by Drs. E. Rice Morgan, Rhys Davies, and Ernest Brice. The subjects included: The Clothing, Feeding, Cleanliness, and Sleep of Infants. The lectures were well attended, and were much appreciated by the parents.

TREATMENT OF DEAF, BLIND, DEFECTIVE, AND EPILEPTIC CHILDREN.

I am indebted to Mr. T. J. Rees, the Superintendent of Education, for the following notes:—

The first case under the above to be treated by the Local Education Authority occurred in 1895, when the late School Board sent a deaf child for instruction to the Royal Cambrian Institution for the Deaf and Dumb, Swansea. This institution is maintained by Government Grant and by voluntary contributions, and the School Board paid into its funds the sum of £18 4s. per annum for the maintenance of this child.

Similarly in 1896 attention was directed to the education of the blind, and a start was made by sending to the "Swansea and South Wales Institution for the Blind" four blind children, the School Board contributing £18 4s. per annum for the maintenance of each.

From these dates onwards, deaf and blind children have been regularly sent to these institutions, the Local Education Authority contributing for maintenance at the rates mentioned above.

Of such children there are to-day in residence, at the expense of the Local Education Authority, 5 deaf and 9 blind children.

Attempts are made to obtain from the parents some contribution to the cost of maintenance (but not of the instruction) of their children at these institutions, and all parents are required to undertake to pay some amount, however small, for this purpose. In practice, however, it has been found that the great majority of the parents are in such poor circumstances, that they have been unable to continue the small contributions they have promised, and the Local Education Authority has had to bear the whole burden.

In regard to epileptic and mentally defective children, nothing was done until 1907, when a lad, who was epileptic, was sent to the Epileptic and Training Colony, Lingfield, Surrey, where he still remains, the Authority's contribution for his maintenance and education being £32 10s. per annum, of which the parent has undertaken to pay £3 18s. per annum.

LECTURES ON HYGIENE.

In 1889 the Swansea School Board appointed a Peripatetic Science Teacher, to give a course of Science Lectures in the Boys' and Girls' Schools. For several years the teaching followed the lines laid down in Schedule IV. of the Education Code, but of late years considerable developments have been made.

At present the Peripatetic Science Staff consists of the original head-instructor and two assistants—one male, one female.

The scheme of instruction is divided into two sections—a Junior (or Sixth Standard) and a Senior (or Seventh Standard), and is given in every school in the town. The Junior Course may be described as one of General Hygiene, while the Senior is devoted to "Personal Hygiene."

Each lesson is illustrated by experiment, diagram or specimen. A central laboratory has been provided, from which apparatus is conveyed from school to school. The laboratory is thoroughly equipped, containing, in addition to ordinary apparatus for teaching chemistry and physics, an adult skeleton, a good selection of physiological models (e g., heart, lungs, brain, stomach, eye, ear, etc.), models of good and bad ventilators, good and bad forms of drain pipes; collections of typical foods, materials employed in the manufacture of clothing, bandages for first-aid work, and samples of all the chief disinfectants.

The following is the Scheme of Lessons in Hygiene and Temperance adopted in the Boys' Schools:—

1—INTRODUCTION.

Necessity for knowledge of laws of health. History of some preventable diseases. The amount of preventable disease.

(Examples:—The Black Death of the 14th Century; Sweating Sickness of the 16th Century; The Plague and the Great Fire of 1666; Scurvy of Anson's Fleet, 1742, etc., etc.)

2—THE FIRST NECESSITY OF A HEALTHY LIFE IS PURE AIR.

Experiments to show the differences between the air “breathed in” and the air “breathed out.” *Air once breathed is unfit to be breathed again.* Examples to show the dangers of breathing a vitiated atmosphere. (Black Hole of Calcutta; the steamer “Londonderry”; the prisoners of Austerlitz, etc.)

The air of inhabited rooms, therefore, must be constantly changed. Simple methods of ventilation.

3—THE SECOND NECESSITY IS PURE WATER.

Brief history of the more important cholera and typhoid fever outbreaks. Organic and inorganic impurities. The organic are the more dangerous. Simple tests for organic impurities. Effects of boiling water.

4—FOOD AND BEVERAGES.

Food must be *right in quality, right in quantity*, and taken at *regular intervals*. What shall we eat? The Mixed diet. Evils of excessive eating and improper food. Indigestion.

5—THE BEVERAGES.

Their division into alcoholic and non-alcoholic. Strong drinks are unnecessary. The chemistry of alcohol: its chief properties.

6—ALCOHOL IS NOT A FOOD.

Animal life under alcohol. The first stage. The false feeling of warmth from alcohol. Experiences of Arctic travellers; the case of the Fur Hunters in the North-west, etc.

Alcohol, instead of keeping the cold “out,” really lets the cold “in.”

7—THE HEART AND THE BLOODVESSELS UNDER ALCOHOL.

Work performed by the heart during the day. Effect of alcohol in increasing the number of beats. The gorging of the bloodvessels; their rupture (as for example in the brain).

8—BRIEF ACCOUNT OF THE MUSCULAR SYSTEM OF THE BODY.

How muscles act and how controlled by the brain. Effect of alcohol on the muscles. Dr. Parkes’ experiments with three soldiers. Weston (the pedestrian), Hanlon (the sculler), Holbein (the swimmer), and all great athletes never touch alcohol.

9—OTHER INJURIOUS EFFECTS OF ALCOHOL.

On the stomach and digestion; on the brain—stimulation and depression. Insanity from alcohol.

10—HEALTHY EXERCISE.

Benefits derived from healthy exercise:—1, Nutrition of the muscles improved; 2, Action of the lungs improved; 3, Action of the skin increased; 4, The circulation is improved; 5, Nervous system greatly strengthened, etc. Necessity for avoiding over fatigue. Forms of exercise.

11—REST.

Partial and complete. Partial rest is the same as change of occupation; sleep is the only form of complete and general rest. General rules concerning sleep. “Early to bed, early to rise, etc.”

12—CLEANLINESS.

Brief outline of the structure of the skin and its several offices. The nature of sweat. Conditions due to uncleanness. Use of soap and baths. Personal cleanliness involves not only attention to the skin, but to the *hair*, *nails* and *teeth*.

13—GENERAL CLEANLINESS.

1, The clothing. Tendency to choose colours “which do not show the dirt.” 2, Attention to cleanliness in respect to *bed-clothes*. 3, Dirt in the house and streets. Filth accumulations.

14—FORMATION OF GOOD HABITS.

“Whatever a man sows, he reaps.” Habits are easily formed; but, when once formed, are not so easily broken. Should be our servants, but often become our masters.

15—SMOKING.

The habit of smoking. The tobacco plant; injurious substances contained in tobacco. The smoker’s heart, the smoker’s sore-throat, loss of memory, etc., are among the chief evils of smoking. Cigar and cigarette smoking are even worse than pipe-smoking. Smoking encourages drinking.

METHODS AND RESULTS OF PHYSICAL OR BREATHING EXERCISES IN THE SCHOOLS.

In 1889 the late Swansea U.D. School Board appointed a retired naval sergeant to give instruction in physical exercises to the children in the Board Schools.

For the first three years this instruction was confined to Boys' Schools, and consisted for the main part of exercises in Military Drill.

In 1892 the Instructor was directed to extend his work to Boys', Girls' and Mixed Schools, and to adopt the syllabus then in force under the London School Board. This syllabus was followed until 1904, when it was replaced by the Model Course of Physical Exercises issued by the Board of Education.

The Instructor visits the schools periodically, spending half a day at each school in turn, and giving at each visit half-hour periods of instruction to Senior Boys, Junior Boys, Senior Girls, and Junior Girls successively.

The drill lesson is given, when the weather permits, in the playground; at other times in the central hall. Ten minutes are devoted to marching, hopping, or jumping, and the remainder of the time to physical exercises devised for the development of every part of the body, and to breathing and deep breathing exercises, with or without leg and arm movements. Weak or sickly children are especially cared for, and great care is taken to prevent any over fatigue.

In addition, the class teachers give short periods of Swedish Drill Exercises to the children in their classrooms.

As a result of the physical education, the health and physique of the children has been maintained, and in many cases greatly improved, and the teachers report that not only has there been evidence of considerable development of alertness, quickness of decision and control of mind over body in the scholars, but that the drill instruction has been followed by an improvement in the general tone and discipline of the school.

OPEN-AIR SCHOOLS, SCHOOL CAMPS, &c.

No arrangements have been made for the establishment of Open-air Schools, School Camps, etc.

SANITARY INSPECTION OF THE SCHOOLS.

In order to still further carry out the requirements of the Board of Education, a number of Sanitary Inspectors have been engaged for several weeks in making enquiries into the hygienic condition of the schools in the Borough.

The following are the special points, regarding which enquiries were made:—

1. Name of School.
2. When built.
3. Department.
4. Date of Inspection.
5. No. of Rooms in each Department.
6. No. of Children in School and in each room on day of visit.
7. No. of Children School, and each room will accommodate. (If thermometer note temperature).
8. Average attendance for week.
9. Method of Ventilation (if sufficient or defective, and inlets and kind).
10. Lighting:—No of windows, area, situation, and if any side shields to same.
11. Method of Warming:—Open fires, stoves, hot water (high pressure, or low pressure), hot air, or gas stoves.
12. Equipment:—Slates and sponges, or paper and pencil, books, desks, maps, diagrams and models.
13. Sanitation:—Condition of drains, if ventilated and provided with inspection chambers, if drained to cesspool, situation of same.
 - (a) No., type, and condition of sanitary conveniences.
 - (b) Type and condition of Lavatories, with No. of basins and No. of towels, if towels clean, and how often changed.
14. Water Supply:—Constant or Intermittent.
 - (a) For washing purposes:—If stored, condition, material and situation of tanks.
 - (b) For drinking purposes:—No. of taps and drinking vessels, condition of vessels, and if periodically cleansed, if water stored, condition, material and situation of tanks. If filters are used, state kind.
15. Cleanliness of School Rooms:—Floors, walls and windows, how often floors scrubbed, and walls swept, dry or wet cleaning, and if disinfectants used.
16. What provision for storage of children's dinners, and condition of same?
17. Cleanliness of cloakrooms:—Walls, floors, windows, if ventilated, how cloaks are hung, and if any accumulation of lost clothing here.
18. Any arrangements for drying children's cloaks, boots, &c., when wet, and are children allowed to sit about in wet clothes?
19. Condition of playgrounds and material:—Concrete, asphalt or ashes, any hollows, if drained, and any covered space.
20. Condition of Ashbin and material:—Its situation, condition, and how often emptied?
21. Any lending libraries connected with School:—Are enquiries made before lending as to whether consumption and other infectious disease at homes?
22. General surroundings of School and neighbourhood:—Whether poor, and if works near and kind.
23. Any recent improvements made and date of same?
24. Cookery rooms.
25. Fire escapes:—1st floor if special outlets, fire drill, and if doors open outwards, any fire extinguishers?
26. Do Scholars attend Baths?
27. Remarks:—Are doors and windows kept open during playtime and dinnertime, and are windows kept open after scholars are dismissed?

As a result, I find that in some schools the ceiling ventilators have been stopped up owing to down draughts, that there is overcrowding in many of the classrooms, that there is indiscriminate use of lead pencils, that there are no special arrangements for drying clothes, that the drinking water tank is stored in one case in a coal-house (Plasmarl), that choked drains have been discovered in some of the schools, and that food cupboards are now being lined with zinc to prevent mice from contaminating the food of the children.

(See table showing defects found at time of inspection).

FIRE EXTINGUISHERS.

As there were no Fire Extinguishers in any of the schools, the Local Education Authority adopted my recommendation that two "Empire" machines should be kept in each department of every school.

SCHOOL CLOSURE.—In consequence of the prevalence of measles, closure of all departments of the whole of the schools in the Borough (Provided and Non-Provided) was recommended for the first week of the year, and was carried out by the Local Education Authority. Some of the departments of a few of the schools were closed at other periods also, owing to the continued prevalence of measles. Departments of the undermentioned schools were closed for the following periods and for the reasons assigned:—

School.	Department.	Date.	Period.	Disease.
Cwm	... Mixed and Infants	... Jan.	... 1 week	... Measles
Danygraig	... Boys, Girls and Infants	... „	... 1 „	... „
Pentrechwyth	... Infants ...	... „	... 1 „	... „
Rutland Street.	Boys, Girls and Infants	... „	... 1 „	... „
St. Thomas	... „ „	... „	... 1 „	... „
St. Helen's	... „ „	... „	... 1 „	... „
St. Helen's	... Infants ...	... Feb	... 2 „	... „
Brynmill	... Boys, Girls and Infants	... Jan.	... 1 „	... „
Terrace Road	... „ „	... „	... 1 „	... „
Oxford Street	... „ „	... „	... 1 „	... „
Brynhyfryd	... „ „	... „	... 1 „	... „
Dyfatty	... „ „	... „	... 1 „	... „
Manselton	... „ „	... „	... 1 „	... „
Waunwen	... „ „	... „	... 1 „	... „
Waunwen	... Infants ...	... May, June	... 4 weeks	... Measles
Hafod	... „ „	... „	... 1 „	... „
Morrison	... „ „	... „	... 1 „	... „
Pentrepoth	... „ „	... „	... 1 „	... „
Plasmarl	... „ „	... „	... 1 „	... „

School.	Department.	Date.	Period.	Disease
St. Joseph's	... Boys, Girls and Infants	... Jan.	... 1 week	... Measles
St. David's	... Mixed and Infants	... „	... 1 „	... „
St. Iltyd's	... „	... „	... 1 „	... „
St. Thomas (Ch. ot E.)	... Infants	... „	... 1 „	... „
York Place	... Girls and Infants	... „	... 1 „	... „
Christ Church.	Infants	... Jan , Mar....	3 „	... „
Cwmbwrla	... Mixed and Infants	... Jan.	... 1 „	... „
Parochial	... „	... „	... 1 „	... „
Graig	... Infants	... „	... 1 „	... „

REMARKS.

Now, having noted some of the defects found, what are the best practical means which we can adopt in order to improve the physical health of the children of the present generation, and, as a natural sequence, the health of future generations? Personally, I pin my faith on Education, with, however, this proviso, that it must be of the right kind. As Ruskin says, “It is not going without Education at all that we have most to dread. The real thing to be feared is getting a bad one.” He again says, “We must first teach ‘The Laws of Health and Exercises enjoyed by them.’” The Chancellor of the Exchequer (Mr. Lloyd-George) recently well said that, “The greatness of the German nation is to be attributed not to the German Army, but to Education.” We may make laws innumerable, but these will be insignificant in their effect compared with a commonsense and more rational thinking on the part of the individual. What Hosea says in the Bible is as true to-day as it was in the days of old: “My people are destroyed for lack of knowledge.” We must give the children (and the parents, too), more precise knowledge concerning the laws of health. And this is where the teachers will have to play the most important part of all. For on the quality of their teaching, regarding the subject of Health, will depend to an enormous extent the health of future generations. But in order that the teachers may teach the children intelligently, it may be necessary that they themselves should be first taught what Health really means. If I had my way, I should make every teacher know and understand that marvellous book of Herbert Spenser's on “Education—Intellectual, Physical and Moral.” It is a wonderful education in itself, and I am quite certain that anyone who reads that book intelligently, will feel all the better for it, and will take a broader view of Education than before. The subject of Health should be taught in every school in the kingdom. In Swansea we have endeavoured to reach the

parents as well as the children, for lectures and demonstrations have been given by *three* of our medical inspectors to parents, and they have been much appreciated. Much more time must be devoted to Health Subjects in the schools than is given at present. This can easily be obtained by eliminating from our elementary education a number of useless subjects which are now being taught in Elementary Schools, and which are of no possible value to the child in after-life. We must teach the children that it is the climate of our country which makes the Britisher the best colonist in the world. For he has been used to such extremes of damp heat and damp cold that he is able to tolerate the climate of any country on the face of the globe. Our climate is one of our greatest national assets. We must teach the children that the necessary requisites for good health are—

1. Plain wholesome food.
2. Pure water.
3. Fresh air and sunlight.
4. Sufficient sleep and exercise.
5. Plain, but suitable clothing.
6. Dry houses.
7. Cleanliness.
8. A sensible education.
9. A definite healthy occupation.
10. A definite hobby.
11. A contented mind.

and lastly,

12. Moderation in everything.

In fact, we have to teach them to be as natural as possible in every way, and to avoid all that is artificial or unreal in Life. And if we cannot reach the parents of to-day, let us hope that, by properly educating their children, we may at all events reach the parents of the future, and influence them for the good of the race.

I am, Gentlemen,

Your obedient Servant,

DAVID J. MORGAN,

School Medical Officer.

Medical Officer of Health.

The following table give the results of examinations and defects found among the scholars in the various schools in which examinations have been made up to 31st December, 1908.

[illegible]

TABLE SHOWING DEFECTS FOUND AT TIME OF INSPECTION.

SCHOOL.	Department.	Any Overcrowding on day of Inspection.	Condition of Ventilation, Lighting and Heating.	Condition of Cloakroom.	Desks.	Doors.	Drinking Arrangements.	Lavatory Basins.	Latrines, Drainage.	Playgrounds.	REMARKS.
Brynmill	Boys	Yes	Good	Good	A few unsuitable	Satisfactory	Tap in boiler house at basement	Good	Good	Good	Accumulation of lost clothing here.
Do.	Girls and Infants	Yes	Good	Ventilation def. in Infants' dept.	Good	"	Filters def. in Girls' dept. and no drinking cup	Good	Latrine in Infants' dept. foul through insufficient flush	In Girls' dept. defect near entrance gate.	
Brynhyfryd	Boys	Yes	Good	Too small	Good	"	Good	Good	Good	Good	
Do.	Girls	Yes	Good	Good	Good	"	Fountain in yd. def.	Defective	Good	Good	
Cwmbwrla	Mixed and Infants	Yes (Mixed)	Ventilation deficient and light at back of children	Good	Some unsuitable for younger children in Infants' dept.	"	No cups	Good	Good	Good	
Cwm	Mixed and Infants	Yes (Mixed)	Good	Good	Good	Only open inwards	No cups	Defective in Infants' Dept.	Flushing apparatus in urinal defective at Mixed dept. Drains not ventilated or provided with intercepting traps.	Good	
Christ Church	Infants	No	Good	Good	Good	Satisfactory	Good	Good	Good	Good	
Dyfatty	Boys, Girls and Infants	Yes	Good	Good	Good	"	Filters defective in Infants' dept.	Good	Good	Defective in all Departments	One classroom in Girls' department used for feeding hungry children, is objectionable owing to offensive smells.
Danygraig	Boys, Girls and Infants	Yes (Boys and Girls)	Good	Good	Good	"	Good	Good	Good	Good	
Graig	Infants	Yes	Ventilation def. & lighting def. in some classrooms	Good	Good	Only open inwards	Good	Defective	Drains not ventilated or provided with intercepting traps.	Formed of ashes, very defective	
Hafod	Boys, Girls and Infants	Yes	Good	Good	Good	Satisfactory	Good	Good	Good	Good	
Morrison	Boys	No	Ventilation def. Light at back of children in four classrooms.	Very badly lighted and ventilated.	Good	Only open inwards	Good	Defective	No flush to urinal	Defective	
Do.	Girls and Infants.	No	Ventilation def. in both departments. Light at back of scholars in 2 rooms of Girls and 3 rooms in Infants' dept. One room in Girls badly lighted, window too high	Both departments very badly ventilated and lighted.	Old pattern	Small and only open inwards	No water for drinking purposes	Good	Four rainwater pipes taken direct into drain	Formed of ashes and very defective	Part of the classroom (No. 1) in Infants' Department is partitioned off as a cloakroom and in wet weather the smell from clothes is almost unbearable.
Manselton	Boys, Girls and Infants	Yes	Good	Good	At Boys' dept. there is a want of different sized desks	Satisfactory	At Girls' department fountain in yard is defective.	Defective at Infants' Dept.	Good	Good	Storage capacity of tanks at Infants' Department insufficient for all purposes.
Oxford Street	Boys, Girls and Infants	In course of re-construction									
Pentrepeth	Boys, Girls and Infants	Yes (Boys and Girls)	Good	Good	Good	Satisfactory	Good	Good	Good	Good	
Parochial	Mixed and Infants	No	Good	Good	Old pattern	In both departments only open inwards	Good	Good	Good	Good	Acc. of lost clothing in both departments. Slates sometimes used in lower standards in Mixed Department. This school is situated dangerously near Swansea and Mumbles Railway.
Pentrechwyth	Infants	No	Rooms cold on day of visit, 41° F.	Good		Only open inwards	No cups	Good	Good	Good	
Plasmarl	Boys	Yes	Ceiling vents def. Light at back of scholars in all except 2 classrooms.	Good	Old pattern in 3 classrooms	Satisfactory	Drinking water stored in tank in coal-house.	Good	Flushing apparatus in urinal defective	Defective	
Do.	Girls and Infants	Yes (Girls)	Several of the classrooms in Girls' dept. insufficient ventilation and 1 badly lighted, and in another light at back of scholars.	Good	Good	"	Good	Good	Good	Good	
Rutland Street	Boys, Girls and Infants	No	Good	There are no cloakrooms, cloaks, etc., hung in lobbies.	Desks old pattern in Boys' and some in Girls' dept.	Open inwards only	No water supply in Boys' dept.	Good	Good	Girls' playground defective.	
St. David's	Mixed and Infants	No	Good	Good	All old pattern	Open inwards only	No cups	No lavatory basins or towels	W.C. walls dirty	Defective near W.C.'s	Slates and Sponges used in Mixed Dept.
St. Illtyd's	Mixed and Infants	Yes	Good	Defective; ceilings and walls damp; windows broken and dirty.	Good	Only open inwards	No cups	One of the lavatory basins broken and no towels provided in Mixed Dept.	Drains are unventilated and not disconnected from sewer, yard drain choked.	Formed of ashes and is in a very defective condition	No ashbin; ashes dumped in one corner of playground.
St. Joseph's	Boys	No	Insufficiently heated. Insufficient headroom, light and ventilation in one room.	Damp, insufficiently lighted and ventilated and totally unfit.	Old pattern	Open inwards only	Tank uncovered.	Defective	Drains not ventilated or disconnected from sewer. Flushing apparatus in urinal defective and walls of same dilapidated and dangerous.	Very defective	
Do.	Girls	No	No. 3 and 4 classrooms are insufficiently heated and have insufficient headroom, light and ventilation, and the approach to same is dangerous. Rooms occupied by classes 1 and 2 are insufficiently lighted and ventilated and are quite unfit.	Improperly lighted and ventilated	Old pattern	Open inwards only	Good	Damp, dirty and offensive owing to smells from adjoining W.C.	Trough leaking and most offensive system, only emptied once a day and drains not ventilated or disconnected from sewer.	Defective	
Do.	Infants	No	Totally unfit for use	Insufficiently lighted and ventilated.	Old pattern	Open inwards only	Water tap locked in W.C.	No lavatory basins or towels.	Drains not ventilated or disconnected from sewer. W.C.'s are defective, and the situation of urinal is bad.	Defective	This Department is totally unfit for use.
St. Thomas	Boys, Girls and Infants	Yes (Boys)	Good	Good	Good	Satisfactory	No cups	Good	Good	Defective in all departments	
St. Thomas (C. of E.)	Infants	Yes	Good	Good	Good	Open inwards only	No cups	Good	Good	Made of ashes, very defective	No ashbin; ashes dumped in corner of playground.
St. Helen's	Boys, Girls and Infants	Yes (Boys and Girls)	Good	Good	Good	Satisfactory	Good	Good	Good	Good	
Terrace Road	Boys	Yes	Ventilation in some classrooms defective.	Good	Some old pattern	"	Storage tanks uncovered and no cups.	Good	Mica flaps defective in fresh air inlets and covers missing from gullies, and flushing apparatus in urinal defective	Defective	
Do.	Girls and Infants	Yes (Girls)	Good	Good	Some old pattern in Girls' dept.	"	Good	Good	Disconnecting chamber choked, and stopper missing in Girls' dept. Flushing arrangement def. in Infants' urinal.	Good	Through passage should be provided in Girls' and Infants' latrines.
Waunwen	Boys	Yes	Standard 3 room insufficiently ventilated. Cows defective.	Good	Good	"	Storage tank uncovered	Defective; cannot be used.	Good	Good	Standard 3 room is damp on one side.
Do.	Girls and Infants	Yes (Girls)	Standard 5 room is dark and stuffy and light and vent. defective in Girls' dept. Standard 2 room in Infants' dept. is very dark, additional windows needed.	Good	Good	"	Storage tank uncovered	Defective in both departments.	Good	Good	Classrooms used by Standards 6 and 7 in Girls' Department, and also used for feeding hungry children, objectionable owing to offensive smells. The door of this room hangs by one hinge and is dangerous. In Girls' Dept. the stove is defective and smoky and the gas radiator is defective.
York	Girls and Infants	No	Lighting at rear of scholars and from skylights.	Good	Old pattern	Open inwards only	No cups	Two enamelled bowls used for washing hands	Drains not ventilated or provided with intercepting traps. W.C.'s are badly ventilated and walls dirty.	Rough paving; ashpit in same, dilapidated.	Girls and Infants in same room. Room water-stained (leak) and dirty in one place. Premises old and totally unfit.

List of Schools, date when built, accommodation, average attendance, and number present on date of Inspection.

SCHOOL.	Date when Built.	Accommodation provided in each Department.			Average Attendance in each Department.			No. of Children present in each Department on day of Inspection.		
		Boys.	Girls.	Infants.	Boys.	Girls.	Infants.	Boys.	Girls.	Infants.
Brynhyfryd	1865	484	400	400	499	430	435	365	424	397
Brynmill	1896	445	380	366	482	393	328	473	388	331
Christ Church	1888	..	..	166	..	..	124	..	..	164
Cwmbrwla	1879	(Mixed) 327.	190	..	(Mixed) 317.	183	..	(Mixed) 294.	..	145
Cwm	1863	(Mixed) 460.	302	..	(Mixed) 410.	130	..	(Mixed) 326.	..	127
Danygraig	1875	400	400	400	384	368	330	375	328	203
Dyfatty	1883	400	602	500	433	475	573	418	456	451
Graig	1884	..	..	265	..	..	281	..	..	243
Hafod	1902	400	400	408	436	388	390	406	374	314
Manselton	1902	400	400	455	416	404	341	363	334	297
Morrison	1868	452	356	303	330	314	287	335	279	227
Oxford Street .. ..	..	In course of reconstruction.			..	..	..	..	..	..
Pentrepeth	1881	400	400	400	338	393	346	327	357	319
Pentrecwyth .. ..	..	..	..	150	..	..	115	..	..	92
Parochial	1859	(Mixed) 306.	175	..	(Mixed) 255.	142	..	(Mixed) 237.	..	116
Plasmarl	1879	370	357	400	365	342	305	350	326	224
Rutland Street	1881	295	203	253	289	203	266	253	200	222
St. David's	?	(Mixed) 150.	150	..	(Mixed) 131.	80	..	(Mixed) 114.	..	72
St. Iltyd's	1884	(Mixed & Infants in same room) 229			(Mixed & Infants in same room) 224			(Mixed and Infants) 183.		
St. Joseph's	?	295	338	314	299	343	231	258	284	222
St. Thomas	1898	400	400	400	328	358	246	316	330	137
St. Thomas (C. of E.)	1863	..	..	319	..	..	205	..	..	181
St. Helen's	1871	360	360	400	389	394	409	363	360	333
Terrace Road	1888	536	462	335	497	452	344	488	465	291
Waunwen	1875	300	300	359	293	326	288	273	304	249
York Place	1811	..	(Girls & Infants in same room) 270.		..	(Girls & Infants in same room) 151		(Mixed and Infants) 122.		

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